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Editor, P. C. DAY, Climatologist and Chief of Division.

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CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 1, NORTH ATLANTIC STATES.

Prof. WILFORD M. WILSON, District Editor.

GENERAL SUMMARY.

Except in the southern part of the district July brought little relief from the droughty conditions that had become serious by the end of June. Over much of New England and most of New York the total precipitation for the two months June and July was less this year than in any other since the establishment of the Climatological Service 24 years ago. In the southern States of the district the June and July rainfall was near or above the normal, well distributed and timely in its occurrence, but in many sections in the northern States the month of July was without any rain of consequence until about the 28th. These conditions resulted in an unusually low state of the water supply, with great injury to growing crops and pastures.

Temperatures in general were seasonable, there being no unusually long periods of abnormally warm or cool weather.

The following table exhibits the leading features of meteorological interest for the various sections of the district:

States or parts of States within district No. 1.	Temperature.				Precipitation.				Average number of—	
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England	69.6	+0.6	102	32	2.66	−1.33	7.56	0.58	9	16
New York	68.7	+0.3	101	33	2.14	−2.14	6.92	0.42	8	17
Pennsylvania	72.2	−0.3	101	40	3.80	−0.35	7.75	0.82	10	16
New Jersey	74.4	+0.6	100	41	2.52	−2.32	4.72	1.50	8	20
Maryland, Delaware, and District of Columbia	76.5	+0.4	102	47	2.57	−1.93	5.47	0.53	8	17
West Virginia	71.9	0.0	102	40	4.17	+0.07	7.21	2.19	11	12
Virginia	75.5	+0.7	98	45	3.45	−0.79	7.04	1.10	10	14

TEMPERATURE.

The monthly mean temperature for all stations in the district averaged about 72°, ranging from 80° at Solomons, Md., to 61.8° at Morehouseville, N. Y. At about two-thirds of the stations the monthly mean was above normal and at other stations it was below. As a rule the temperatures averaged above the normal over the coastal plains and somewhat farther inland, while a deficiency in temperature appeared in most parts of Pennsylvania and along the western limit of the district in other States.

Maximum temperatures of 100° or more were recorded by at least one station in each of the States, except Rhode Island, Connecticut, Delaware, and Virginia. The highest temperature recorded was 102° at the following stations: Franklin, N. H., and Green Spring Furnace, Md., on the 1st; Martinsburg, W. Va., on the 5th, and Frederick, Md., on the 30th. A period of hot weather that set in before the close of June continued until about the 7th, when, in most parts of the district, temperatures fell to about the seasonal average. No other noteworthy hot period occurred until the 27th–30th.

The lowest temperatures occurred on various dates, chiefly the 8th, 12th, and 26th. Minimum temperatures lower than 40° were not recorded except in the cooler parts of New York and New England. The lowest reported in the district was 32° at Houlton, Me., on the 25th.

PRECIPITATION.

The average precipitation for the district was only about 3 inches, but extensive areas in southern New England, New York, New Jersey, and smaller areas in other States received less than half that amount. In consequence, serious drought prevailed throughout the month, conditions becoming gradually worse in many places until the close, though in some instances the records show heavy rainfall about the 28th. May and June having been unusually dry, the deficiency of rainfall in July caused such injury to vegetation as has not been known for many years, except possibly in 1910. The accumulated deficiency in rainfall from May 1 to July 31 averaged 3.42 inches for the stations in the New England section, 4.73 inches for the New York section, 4.82 inches for New Jersey, and 3.20 for Maryland and Delaware. In other parts of the district the deficiency was less pronounced. In portions of north central Massachusetts the rainfall for June and July is stated to have been the least for these months in nearly 50 years. The average rainfall for July in the New York section was the least on record since the establishment of the Climatological Service.

Showers occurred with almost as great frequency as is usual in July, but as a rule they were very light. Heavy rains did not occur extensively on any date during the month, though instances of local showers amounting to an inch or more are recorded on 10 or 12 different dates. Five stations reported rainfall in excess of 2.50 inches in 24 hours. At St. Johnsbury, Vt., 4.99 inches of rain fell on the 28th; at Port Jervis, N. Y., over 2 inches of rain fell within 45 minutes on the same day. Press reports gave fewer accounts of damage from hail and lightning than are usually seen in July.

Near Hornell, N. Y., a destructive hailstorm occurred on the 13th, which was said to have been the worst in that region for many years. The damage to crops was estimated at several thousand dollars. According to the statement of the cooperative observer at Alfred, N. Y., the hail affected a belt 5 miles wide and 12 miles long, severely injuring oats, corn, apples, killing chickens, etc. Some of the pellets measured nearly an inch in length.

MISCELLANEOUS.

Though heavy local showers in a few instances caused flooding along small streams, the principal rivers were affected but little and remained nearly stationary throughout the month.

There was an abundance of sunshine, though the total amount and the percentage of the possible averaged slightly less than in June. At the regular Weather Bureau stations the amounts of sunshine varied from 376 hours at Atlantic City to 253 hours at Mount Weather, Va., or, expressed in terms of percentage of the possible sunshine, from 83 to 56.

The average number of rainy days was 9, of clear days 16, partly cloudy days 12, and cloudy days 3.

THUNDERSTORM OF JULY 30, 1913, AT WASHINGTON, D. C.

By P. C. DAY, Climatologist and Chief of Division.

On the afternoon of July 30, 1913, between 3 and 4 o'clock, there occurred one of the most severe thunderstorms that ever visited the city of Washington. While the extent of territory affected by the storm was comparatively small it presented some unusual phenomena in the matter of high winds, heavy rains, and destruction to property.

Up to the time of the occurrence of the storm the atmospheric pressure presented no marked variation from the usual conditions. The barometer was steadily falling as the result of the diurnal change and stood at about 29.9 inches when the storm broke. The day had opened clear with temperature about 76°, from which point it rapidly climbed to 94° by noon and to 97° at 2 p. m., with prospects of going even higher had not the gathering clouds interfered with its further upward march. Light variable winds, mostly from the north or west, had prevailed up to about 3 p. m., when the direction changed to north and then to northeast, the velocity increasing rapidly from 4 or 5 miles per hour to a gale of unusual force.

Clouds began to gather early in the afternoon and by 2.30 they had obscured the sun, at which time the first thunder was heard. The storm rapidly gathered force, and angry, dust-colored lower clouds formed in the north and northeast, moving rapidly southward, while the ragged edges of the more elevated clouds indicated the probability of still higher winds to follow.

Light rain began at 3 p. m., becoming torrential about 3.10 p. m., at which time the wind shifted from north to northeast, and increased greatly in velocity. At the same time heavy hail began, the rattling of which, with the brilliant flashes of lightning, the terrific thunder, the violence of the wind, the flying débris from houses and trees, and the near approach to total darkness, probably produced a more terrifying condition than was ever before experienced in the District.

At the Weather Bureau office the wind attained a velocity of 68 miles from the north and northeast from about 3.10 to 3.20 p. m., with occasional gusts that probably exceeded 70 miles, the highest velocity ever recorded at that point.

With the beginning of the rain and the increased velocity of the wind the usual rise in pressure that accompanies thunderstorms occurred, the barograph responding promptly to the increased pressure, and showing a sudden rise of nearly two-tenths of an inch. At the same time there was a rapid fall in the temperature, the change from 3 to 3.15 p. m., 15 minutes, amounting to slightly more than 30°.

The severest portion of the storm lasted about 15 minutes, during which time the fall of rain amounted to more than an inch and a half, and damage from wind and hail in the District alone probably amounted to several hundred thousand dollars.

The most significant feature of the storm was the apparent shortness of its path considering the length of the period during which it raged with such severity. From reports from postmasters and others in the immediate vicinity of Washington it seems that the storm suddenly developed its severe character near the northeastern boundary of the District, only light winds and but little rain as a rule occurring in the adjoining portions of Maryland.

The severest portion of the storm appears to have traveled in a course slightly west of south across the central part of the city, and was dissipated rapidly on reaching the hills on the Virginia side of the Potomac.

In its course through the city severe damage was wrought to many different interests. Houses were unroofed and flooded, windows on the north sides of buildings were shattered by the hail, many shade trees were broken sharply off or uprooted, while thousands of others had many of their branches torn off or badly broken. Several buildings collapsed from the force of the storm, the falling of one at Seventh and L Streets NW., causing the death of two persons and the severe injury of several others. Numerous narrow escapes from death were reported, and many persons were injured in the streets or at their homes by flying débris of various kinds.

On the river the wind was even more severe than in the city, but sufficient warning of the approach of the storm had enabled those interested to prepare for it. Some damage was done, however, to the smaller craft, and to property along the river front, the flooring of the Aqueduct Bridge being partly torn up and several persons narrowly escaping death from the flying boards. Hundreds of telephones were damaged, poles and wires were broken down, and street-car traffic was delayed.

Much damage occurred in the parks and to the shade trees throughout the city, many magnificent and noted trees being uprooted or broken off, or so badly injured as to require their removal. Outside the limits of the District the rainfall, wind, and other evidences of the storm were light, no rain falling at nearby points to the northwest and southwest, and but little beyond the first few miles on the Virginia side of the Potomac, while the severe wind was likewise confined largely within the limits of the District.

From reports received it appears that the storm began near Laurel, Md., at about 2.30 p. m., with moderate winds from the northwest, and accompanied by heavy thunder; it increased in intensity as it approached the District line and at Takoma Park rain began at 3 p. m. and continued until 4.15 p. m., accompanied by hail heavy enough to crack windows and shred leaves of vegetables and plants. At College Park, Md., rain began at 3 p. m. and ended at 5 p. m.; total fall, 0.66 inch. At Rockville, Md., it began at 2.30 p. m. and ended at 5 p. m., with 0.90 inch rain, light hail being reported east of the town. The wind was heavy from the north, but did very little damage. A trace of rain fell at Poolesville, Md., at 3 p. m., with wind from the east, but without damage. The wind was brisk southeast at Germantown, Md., but there was no evidence of the storm to the westward in Virginia. To the southeastward of the District line there was little evidence of the storm, and it appears to have soon spent its force after crossing the Potomac, as only 0.05 inch of rain, and light wind were reported from Fairfax, and there was no rain or wind at Manassas and other nearby points in Virginia.

TABLE 1.—*Climatological data for July, 1913. District No. 1, North Atlantic States.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Maine.																			
Bar Harbor	Hancock	20	27	67.8	+ 2.2	89	29	45	16	39	3.38	+ 0.67	1.23	0	6	20	7	4	sw.	William Miller.
Cornish	York	778	58	70.9	+ 1.9	99	1	43	12	43	2.12	− 2.07	0.67	0	11	11	11	9	w.	T. H. West.
Eastport	Washington	53	41	62.0	+ 2.2	87	4	48	1	33	2.68	− 0.74	0.86	0	13	7	16	8	s.	U. S. Weather Bureau.
Fairfield	Somerset	90	28	67.4	− 0.5	92	4	47	22	38	1.51	− 1.84	0.78	0	3	10	1	20	.....	E. F. Parker.
Farmington	Franklin	450	16	67.5	+ 0.1	94	1†	43	9†	42	2.90	− 0.79	1.20	0	13	11	14	6	sw.	State Normal School.
Gardiner	Kennebec	163	21	68.6	− 2.2	93	1†	47	12	40	1.62	− 1.63	0.73	0	10	24	2	5	sw.	Samuel D. Soule.
Greenville	Piscataquois	1,140	9	64.4	.....	90	4	43	9	34	5.01	+ 0.49	1.51	0	14	.....	.....	.....	.....	U. S. Weather Bureau.
Houlton	Aroostook	362	11	67.4	.....	93	5	32	25	48	1.64	− 1.06	1.30	0	5	15	5	11	nw.	Bangor & Aroostook R. R.
Lewiston	Androscoggin	185	39	70.0	+ 0.5	100	1	52	9†	38	1.53	− 2.02	0.62	0	10	13	13	5	nw.	Union Water Power Co.
Madison	Somerset	257	10	67.0	.....	99	2	44	9	39	3.07	− 1.30	1.15	0	8	26	0	5	w.	William Jardine.
Millinocket	Penobscot	386	10	67.8	.....	94	4	45	9	39	3.49	− 0.16	1.18	0	12	11	4	16	w.	F. C. Bowler.
North Bridgton	Cumberland	450	20	70.9	+ 1.4	100	1	46	12	41	2.03	− 2.31	1.14	0	10	6	23	2	sw.	G. E. Chadbourne.
Orono	Penobscot	129	44	68.6	+ 1.3	91	5	48	12†	38	5.86	+ 2.72	1.52	0	15	7	12	12	sw.	Department of Physics.
Patten	....do	550	11	65.6[d]	.....	93[d]	4	40[d]	9†	46	4.00	.....	1.00	0	4	18[d]	5[d]	4[d]	sw.	Bangor & Aroostook R. R.
Portland	Cumberland	99	42	68.6	+ 0.6	101	1	52	9	38	2.27	− 0.98	1.11	0	10	13	8	10	s.	U. S. Weather Bureau.
Presque Isle	Aroostook	.....	4	68.7	.....	91	4	41	31	36	5.18	.....	1.02	0	16	9	3	19	nw.	E. M. Libby.
Rumford Falls	Oxford	505	20	68.2	− 0.1	95	1	47	26	37	2.65	− 1.31	1.21	0	9	22	7	2	nw.	Charles A. Mixer.
Van Buren	Aroostook	510	8	63.4	.....	85	29	41	31	37	3.53	.....	0.63	0	14	11	6	14	s.	J. M. Thomas.
Winslow	Kennebec	90	18	69.8	.....	93	2†	45	22	38	1.65	− 1.16	0.85	0	9	15	10	6	w.	Hollingsworth & Whitney Co.
New Hampshire.																			
Alstead Center	Cheshire	1,120	9	68.5	− 3.2	95	1	46	12	35	3.71	− 0.68	0.70	0	12	22	7	2	sw.	Frank Dewing.
Benton	Grafton	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	State Sanatorium.
Bethlehem	....do	1,470	21	66.0	− 1.1	93	1	43	12	37	4.08	− 0.02	1.41	0	13	15	9	7	sw.	Benjamin Tucker.
Concord	Merrimack	350	53	70.0	+ 0.9	99	1	45	12	43	1.25	− 2.54	0.58	0	10	12	13	6	nw.	U. S. Weather Bureau.
Durham	Stafford	88	18	70.6	+ 0.7	101	1	47	13	44	0.98	− 2.58	0.56	0	6	22	4	5	nw.	Agricultural Exp. Station.
Franklin	Merrimack	440	14	69.8	− 0.1	102	1	43	12†	47	3.82	+ 0.60	2.75	0	7	22	6	3	nw.	Dr. P. C. Webster.
Grafton	Grafton	863	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. R. Kimball.
Hanover	....do	603	79	68.9	− 0.3	98	1	40	12	45	3.16	− 0.50	1.15	0	13	11	13	7	s.	Dartmouth College.
Keene	Cheshire	506	28	69.5	+ 1.2	100	1	40	12†	47	2.01	− 2.27	0.62	0	11	15	13	3	sw.	Samuel Wadsworth.
Nashua	Hillsboro	125	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jackson Co.
Newton	Rockingham	.....	25	69.7	+ 0.5	97	1	44	12	39	1.09	− 2.53	0.72	0	6	11	17	3	sw.	W. C. Gale.
Plymouth	Grafton	500	25	67.2	− 0.4	96	1	39	12	44	2.85	− 0.57	1.05	0	7	19	2	10	w.	Hattie G. Trow.
Vermont.																			
Bloomfield	Essex	.....	6	65.4	.....	93	1	39	12	42	4.74	.....	1.00	0	19	12	13	6	s.	Lyman Falls Power Co.
Cavendish	Windsor	910	10	69.0[a]	.....	101[a]	1	40[a]	12	48[a]	2.83	.....	0.60	0	15	17[a]	9[a]	4[a]	w.	E. D. Kingsbury.
Chelsea	Orange	840	18	66.0	− 1.2	92	4†	36	12	50	2.93	− 1.21	1.98	0	9	13	7	11	s.	W. F. Dewey.
Manchester	Bennington	980	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. M. Canfield.
Somerset	Windham	2,096	1	63.3	.....	91	1	33	12	46	3.76	.....	0.93	0	12	15	5	11	sw.	J. Albert Holmes.
St. Johnsbury	Caledonia	711	20	68.2	+ 0.1	95	1	40	12	44	7.56	+ 3.25	4.99	0	12	7	20	4	sw.	Fairbanks Museum.
Woodstock	Windsor	700	21	68.8	+ 0.5	95	1	42	12	41	3.08	− 0.25	0.88	0	6	11	7	13	.....	John S. Eaton.
Massachusetts.																			
Amherst	Hampshire	222	24	71.6	+ 1.1	100	1	41	12	45	1.59	− 2.98	0.86	0	9	20	8	3	s.	Agricultural Exp. Station.
Blue Hill	Norfolk	640	29	71.0	+ 1.8	92	1	54	7†	29	2.00	− 1.79	0.89	0	9	11	9	11	s.	Blue Hill Observatory.
Boston	Suffolk	124	43	73.8	+ 2.5	96	1	60	26	27	2.69	− 0.67	0.91	0	9	11	15	5	sw.	U. S. Weather Bureau.
Chestnut Hill	....do	124	33	73.4	+ 1.8	98	1	49	26	34	2.25	− 1.37	0.66	0	7	27	0	4	.....	Metropolitan Water Board.
Clinton	Worcester	370	17	71.1	.....	89	1†	53	7	32	1.96	.....	0.87	0	12	.....	.....	.....	.....	Do.
Concord	Middlesex	139	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Fred A. Tower.
Fall River	Bristol	200	47	72.5	+ 1.8	90	2	58	7	22	2.87	− 0.73	1.13	0	10	13	17	1	sw.	C. V. S. Remington.
Fitchburg	Worcester	550	30	72.6	+ 2.1	98	1	50	8	33	1.74	− 2.48	0.75	0	8	22	4	5	w.	Dr. A. P. Mason.
Framingham	Middlesex	160	33	72.5	+ 1.2	96	1	48	12	36	4.02	+ 0.37	1.36	0	10	.....	.....	.....	.....	Metropolitan Water Board.
Hyannis**	Barnstable	31	22	71.0	− 1.8	92	2	54	26	27	0.92	− 1.88	0.42	0	4	24	7	0	sw.	C. F. Sleeper.
Lawrence	Essex	51	29	72.4	− 0.2	97	1	50	26	34	1.09	− 2.23	0.39	0	6	10	19	2	sw.	Essex Co.
Lowell	Middlesex	100	28	73.9	+ 2.4	94	1†	53	12	33	1.21	− 2.48	0.58	0	8	.....	.....	.....	.....	Props. Locks & Canals.
Middleboro	Plymouth	53	27	70.2[a]	+ 1.0	91	2	46[b]	12	34[b]	1.80	− 1.28	1.07	0	6	6	20	5	sw.	A. R. Gurney.
Nantucket	Nantucket	47	27	69.8	+ 2.3	87	2	58	4	22	0.58	− 2.10	0.57	0	4	15	15	1	sw.	U. S. Weather Bureau.
New Bedford	Bristol	88	101	71.9	+ 2.5	93	2	58	7†	24	1.87	− 1.47	0.83	0	4	22	6	3	sw.	City engineer.
Norfolk	Norfolk	244	10	70.8	.....	95	5	39	7	39	4.51	.....	1.32	0	6	17	12	2	w.	Ruby H. Martyn.
Plymouth	Plymouth	.....	28	69.7	.....	93	3	54	8†	31	1.64	.....	0.70	0	9	21	7	3	w.	Laura B. Knapp.
Provincetown	Barnstable	40	26	71.2	− 1.5	92	2	57	8	27	1.60	− 1.33	0.76	0	3	24	0	7	sw.	Gideon Bowley.
Rockport	Essex	25	11	68.3	.....	90	1	54	14	34	1.99	.....	0.75	0	7	16	10	5	sw.	C. F. P. Bearse.
Rutland	Worcester	1,160	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	State Sanatorium.
Turners Falls	Franklin	200	22	71.0	+ 1.1	98	4†	46	12	37	1.02	− 3.31	0.41	0	8	17	8	6	.....	Turners Falls Co.
Westboro	Worcester	298	39	73.9	+ 1.8	97	1†	47	26	34	3.27	− 0.32	1.12	0	8	.....	.....	.....	.....	G. S. Newcomb.
Williamstown	Berkshire	711	32	69.1	+ 0.5	95	1	44	12	38	3.88	− 0.71	1.08	0	10	11	14	6	w.	Williams College.
Worcester	Worcester	518	21	72.6	+ 1.2	94	1	57	14	25	2.56	− 1.41	0.69	0	8	13	15	5	sw.	G. W. Swan.
Rhode Island.																			
Block Island	Newport	26	33	70.4	+ 2.3	88	2	60	12	23	1.23	− 1.08	0.47	0	9	13	15	3	sw.	U. S. Weather Bureau.
Bristol	Bristol	53	27	71.1	+ 1.3	87	2	56	26	24	2.69	− 0.44	0.87	0	8	25	4	2	sw.	N. G. Herreshoff.
Kingston	Washington	250	24	69.2	0	92	2	48	8	32	2.94	− 0.82	0.86	0	6	16	12	3	sw.	Nathaniel Helme.
Narragansett Pier	Newport	22	31	69.4	− 0.5	94	2	51	8	27	2.29	− 1.03	0.71	0	7	29	1	1	sw.	U. S. Weather Bureau.
Providence	Providence	182	9	73.4	0	93	1†	57	8†	25	2.29	− 1.07	0.50	0	9	11	18	2	sw.	Do.
Connecticut.																			
Bridgeport	Fairfield	20	20	73.9	.....	96	30	50	8	33	2.05	.....	0.83	0	9	16	13	2	s.	William Jennings.
Canton	Hartford	900	52	71.0	+ 2.6	96	1	46	12	37	1.36	− 3.51	0.42	0	5	16	11	4	nw.	G. J. Case.
Colchester	New London	370	27	72.1	+ 2.1	94	30	45	8	38	1.70	− 2.42	0.50	0	7	16	7	8	w.	S. P. Willard.
Cream Hill	Litchfield	1,300	17	69.6	+ 0.6	93	1	49	7†	31	1.37	− 4.69	0.32	0	9	23	4	4	sw.	C. L. Gold.
Danielson	Windham	300	11	71.6	.....	94	6	48	12	35	3.18	.....	1.11	0	7	24	6	1	s.	F. E. Bitgood.
Hartford	Hartford	159	9	73.2	+ 1.6	95	1	53	8†	29	1.83	− 2.28	0.61	0	8	6	20	5	s.	U. S. Weather Bureau.
Hawleyville	Fairfield	600	15	70.7	− 0.2	93	1†	45	8†	36	2.25	− 1.70	1.05	0	7	17	12	2	nw.	C. B. Hawley.
New Haven	New Haven	127	126	73.5	+ 1.6	95	30	54	12	25	1.69	− 3.09	0.48	0	9	9	18	4	s.	U. S. Weather Bureau.
New London	New London	47	43	74.4	+ 3.9	95	5†	54	12	31	1.71	− 2.34	0.51	0	7	21	6	4	sw.	Thos. C. Dillon.
North Grosvenor Dale	Windham	400	23	70.4	− 0.6	92	1†	43	11	37	1.76	− 2.60	0.73	0	8	18	11	2	sw.	Grosvenor Dale Co.
Norwark	Fairfield	116	23	73.3	+ 2.2	97	30	45	8	35	1.04	− 4.09	0.35	0	5	21	9	1	sw.	George C. Comstock.
Southington	Hartford	140	44	71.2	+ 0.1	93	1	43	8	38	1.20	− 3.21	0.45	0	6	14	17	0	sw.	Luman Andrews.
Storrs	Tolland	640	25	70.8	+ 2.1	90	1†	47	12	36	4.25	− 0.77	1.58	0	8	21	5	5	sw.	Agricultural Exp. Station.
Torrington	Litchfield	625	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. E. H. Forbes.
Voluntown	New London	260	28	69.2	− 1.0	93	30	39	8†	44	1.61	− 2.64	0.70	0	5	21	8	2	sw.	J. L. Herbert.
Waterbury	New Haven	400	38	73.0	+ 1.3	97	1†	45	8	38	1.36	− 3.80	0.38	0	9	.....	.....	.....	.....	N. J. Welton.

TABLE 1.—*Climatological data for July, 1913. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York.																				
Addison	Steuben	1,000	23	70.5	+ 0.2	98	1	43	22	45	2.02	− 1.37	0.46	0	14	21	7	3	sw.	Dr. H. R. Ainsworth.
Albany	Albany	97	92	72.8	+ 0.8	99	1	49	12	33	1.82	− 2.08	0.63	0	10	18	11	2	s.	U. S. Weather Bureau.
Alfred	Allegany	1,976	18	67.4	− 0.2	94	1	42	12	36	2.03	− 1.29	0.60	0	9	.....	.....	.....	.....	F. S. Place.
Amsterdam	Montgomery	277	9	70.6	.....	98	1	42	12	42	2.64	.....	0.70	0	12	17	10	4	w.	Emery Elwood.
Athens	Greene	90	11	73.2	+ 1.0	100	1	47	12	37	1.86	− 1.37	1.12	0	6	15	14	2	sw.	E. C. Brooks.
Ballston Lake	Saratoga	400	9	69.2	.....	95	1	41	12	40	3.53	.....	1.32	0	10	19	8	4	w.	Geo. R. Schaffer.
Bedford	Westchester	450	22	73.4	+ 0.8	93	30	50	8†	34	2.17	− 2.15	0.65	0	10	7	22	2	.....	Dr. L. Rosenberg.
Beerston	Delaware	1,214	1	67.4	.....	96	1	38	12	44	2.05	.....	0.64	0	11	21	8	2	w.	John Q. Barlow.
Binghamton	Broome	875	22	69.3	− 0.6	97	1	46	12	40	1.55	− 1.99	0.73	0	10	6	14	11	sw.	U. S. Weather Bureau.
Bouckville	Madison	1,350	16	69.0	+ 1.0	93	1†	46	12†	39	1.82	− 2.83	0.57	0	10	14	8	9	nw.	L. W. Griswold.
Boyds Corners	Putnam	560	31	.....	.....	.....	.....	.....	.....	.....	2.21	− 2.49	.....	.....	.....	.....	.....	.....	.....	Thomas Manning.
Carmel	....do	500	21	71.9	− 0.3	95	30	46	8	37	1.65	− 3.53	0.58	0	8	21	7	3	nw.	Do.
Chatham	Columbia	470	12	72.7	+ 1.8	101	1	46	8	35	2.91	− 1.09	1.06	0	9	19	10	2	n.	Morton R. Tank.
Cooperstown	Otsego	1,250	59	67.2	− 0.9	92	1	43	12	36	2.31	− 2.23	0.64	0	11	24	7	0	s.	Miss Elizabeth C. Keese.
Corinth	Saratoga	542	11	.....	.....	.....	.....	.....	.....	.....	1.23	.....	0.35	0	5	.....	.....	.....	.....	A. M. Hollister.
Cortland	Cortland	1,129	51	69.4	+ 2.3	93	1	43	22	40	1.72	− 3.16	0.68	0	10	21	8	2	sw.	F. G. Baker.
Cutchogue	Suffolk	32	14	73.4	+ 1.4	96	30	50	8	33	0.72	− 2.63	0.28	0	7	19	12	0	sw.	Wm. A. Fleet.
De Ruyter	Madison	1,300	10	65.8	− 1.0	91	1†	42	11†	40	2.10	− 2.30	0.82	0	6	16	6	9	nw.	B. D. Crandall.
Elmira	Chemung	863	30	71.6	− 0.6	97	1	51	15	34	1.86	− 1.51	1.03	0	9	12	12	7	sw.	T. A. Brown.
Glens Falls	Warren	340	22	71.0	+ 0.1	100	1	45	8	41	1.50	− 2.52	0.92	0	6	12	4	15	sw.	Prof. C. L. Williams.
Gloversville	Fulton	850	21	68.6	− 0.3	95	1†	40	12	40	2.03	− 2.16	0.54	0	7	15	15	1	w.	W. L. McLean.
Greenfield Center	Saratoga	314	15	69.2	− 0.8	96	1†	42	12	39	2.69	− 1.34	1.20	0	8	15	14	2	sw.	S. E. Darrow.
Griffin Corners	Delaware	2,260	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Harold O. Judd.
Haskinville	Steuben	.....	18	.....	.....	.....	.....	.....	.....	.....	1.66	.....	0.45	0	8	.....	.....	.....	.....	W. G. Collins.
Homer	Cortland	1,096	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. C. Mortimer.
Hoosick Falls	Rensselaer	410	11	.....	.....	.....	.....	.....	.....	.....	3.11	.....	1.05	0	8	.....	.....	.....	.....	S. L. Cluett.
Indian Lake	Hamilton	1,705	14	64.4	− 0.9	100	1	33	12	49	3.03	− 1.04	1.50	0	9	17	6	8	w.	Lester Severie, jr.
Jeffersonville	Sullivan	1,240	10	68.2	.....	97	1	41	8	40	4.48	.....	0.99	0	10	20	10	1	w.	Chas. Wilfert, jr.
Liberty	....do	2,300	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. H. M. King.
Little Falls	Herkimer	924	15	70.1	+ 0.7	95	4	45	12	36	1.35	− 3.41	0.85	0	4	21	10	0	w.	O. J. Dempster.
Mohonk Lake	Ulster	1,245	17	71.4	+ 1.7	95	1	51	7	28	1.11	− 4.52	0.25	0	8	12	15	4	se.	Daniel Smiley.
Morehouseville	Hamilton	1,697	5	61.8	.....	88	1	35	8†	43	2.73	.....	1.09	0	5	26	3	2	w.	T. C. Remonda.
Morrisville	Madison	1,325	1	68.5	.....	99	3	40	12	45	0.42	.....	0.30	0	3	23	6	2	nw.	I. M. Charlton.
Mount McGregor	Saratoga	1,060	1	70.0	.....	94	1	52	11	26	2.13	.....	0.49	0	7	11	15	5	.....	W. S. Stanton.
Mount Hope	Westchester	200	16	74.7	+ 1.6	92	1†	52	26	32	2.30	− 2.20	0.73	0	6	10	19	2	.....	W. A. Cornelius.
Newark Valley	Tioga	825	26	.....	.....	.....	.....	.....	.....	.....	1.58	− 2.62	0.58	0	9	.....	.....	.....	.....	Lyman D. Clinton.
New Berlin	Chenango	1,090	6	.....	.....	.....	.....	.....	.....	.....	1.31	.....	0.58	0	7	.....	.....	.....	.....	Chas. F. Sarle.
New Lisbon	Otsego	1,234	23	65.0	− 0.5	92	1†	37	12†	44	2.31	− 2.72	0.89	0	10	9	12	10	nw.	G. A. Yates.
New York City	New York	314	88	75.0	+ 1.5	95	30	57	7	23	3.02	− 1.52	1.06	0	7	15	9	7	nw.	U. S. Weather Bureau.
North Creek	Warren	1,002	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. G. Kenwell.
Northville	Fulton	742	11	.....	.....	.....	.....	.....	.....	.....	2.72	.....	1.52	0	6	.....	.....	.....	.....	P. C. Pickard.
Oneonta	Otsego	1,112	19	69.4	− 0.7	97	1	43	12†	42	3.08	− 1.64	1.72	0	6	18	9	4	nw.	H. W. Lee.
Oxford	Chenango	916	48	68.6	+ 0.2	94	1	44	12†	37	1.96	− 2.20	0.59	0	7	17	12	2	w.	J. P. Davis.
Oyster Bay	Nassau	40	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. Thos. Colby.
Port Jervis	Orange	470	29	72.4	+ 1.2	101	1	47	12	42	6.92	+ 1.60	2.89	0	9	15	11	5	sw.	W. H. Nearpass.
Roslyn	Nassau	215	1	74.1	.....	97	2	55	7†	31	1.56	.....	0.36	0	10	24	5	2	sw.	C. H. Hechler.
Salisbury	Herkimer	1,526	16	64.7	− 3.4	89	1	36	12	39	3.29	− 1.22	0.93	0	9	19	12	0	w.	Joseph Ryan.
Scarsdale	Westchester	200	9	72.7	.....	94	2†	53	7†	29	2.45	.....	0.55	0	7	23	7	1	nw.	C. H. Wilmarth.
Setauket	Suffolk	40	28	73.4	+ 1.3	92	30	53	8	28	0.91	− 3.54	0.27	0	5	22	8	1	w.	Selah B. Strong.
Sharon Springs	Schoharie	821	0	70.0	.....	96	1	41	12	43	2.82	.....	0.90	0	7	15	14	2	s.	Wm. M. Kling.
Sherburne	Chenango	.....	6	.....	.....	.....	.....	.....	.....	.....	1.43	.....	0.37	0	7	.....	.....	.....	.....	D. G. Trow.
Southampton	Suffolk	36	12	72.0	+ 1.2	92	2†	50	8	25	0.78	− 1.94	0.33	0	6	24	7	0	nw.	W. L. Jagger.
Southeast Reservoir	Putnam	310	18	.....	.....	.....	.....	.....	.....	.....	2.47	− 2.37	.....	.....	.....	.....	.....	.....	.....	Thomas Manning.
South Edmeston	Otsego	1,300	1	67.4	.....	94	1†	38	12	45	1.38	.....	0.57	0	8	16	9	6	nw.	F. H. Bilderbeck.
Spier Falls	Saratoga	400	12	70.7	+ 1.0	99	1	43	11	41	1.05	− 2.27	0.35	0	6	12	17	2	sw.	Geo. E. Fifield.
Trenton Falls	Oneida	751	10	.....	.....	.....	.....	.....	.....	.....	1.68	.....	0.88	0	6	.....	.....	.....	.....	C. W. Young.
Tribeshill	Montgomery	268	10	.....	.....	.....	.....	.....	.....	.....	2.70	.....	0.70	0	7	.....	.....	.....	.....	R. S. Marshall.
Troy	Rensselaer	.....	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	4	10	.....	David B. Plum.
Utica	Oneida	537	47	.....	.....	.....	.....	.....	.....	.....	3.51	− 1.11	0.85	0	10	.....	.....	.....	.....	W. E. Young.
Wading River	Suffolk	112	7	72.6	.....	96	30	44	8	39	0.60	.....	0.20	0	7	26	5	0	sw.	H. B. Fullerton.
Wappingers Falls	Dutchess	110	23	73.2	+ 0.3	95	1	52	11	33	1.44	− 3.87	0.28	0	8	16	15	0	se.	H. C. Townsend.
Warwick	Orange	538	19	.....	.....	.....	.....	.....	.....	.....	2.90	− 1.81	1.48	0	10	19	10	2	.....	John W. Sly.
Waverly	Tioga	824	31	70.4	0.0	97	1	41	20†	46	1.23	− 2.65	0.37	0	11	11	14	6	sw.	J. F. Shoemaker.
West Berne	Albany	946	14	68.5	− 1.1	95	1	37	12	49	2.45	− 1.69	0.65	0	8	12	15	4	sw.	W. J. Haverly.
West Point	Orange	167	64	75.0	+ 1.0	100	1	54	12	35	1.96	− 2.66	0.78	0	7	12	12	7	w.	U. S. Military Academy.
Windham	Green	1,520	13	67.1	− 0.3	94	1	42	8†	39	2.28	− 1.32	0.57	0	8	17	12	2	.....	A. R. Mott.
Pennsylvania.																				
Altoona	Blair	1,181	25	69.8	− 1.8	93	1	47	11	31	4.84	+ 1.21	1.86	0	13	19	9	3	w.	S. A. Gailey.
Bethlehem	Northampton	260	12	75.0	+ 0.9	98	30	55	26	33	2.50	− 2.14	2.35	0	7	16	13	2	w.	Chas. H. Rominger.
Catawissa	Columbia	470	4	71.8	.....	96	1	52	8†	30	3.98	.....	1.09	0	10	21	7	3	.....	Wm. G. Yetter.
Drifton	Luzerne	1,633	15	68.3	− 0.5	95	1	46	15	35	4.50	+ 0.48	0.88	0	15	15	13	3	w.	Eckley B. Coxe, jr.
Doylestown	Bucks	347	23	.....	.....	.....	.....	.....	.....	.....	6.04	+ 0.82	4.55	0	5	.....	.....	.....	.....	Alfred W. Walton.
Emporium	Cameron	1,050	26	68.0	− 2.5	92	1	44	22	35	6.31	+ 1.85	1.75	0	10	17	9	5	w.	T. B. Lloyd.
Ephrata	Lancaster	384	13	73.6	− 1.0	97	29	52	26	30	2.06	− 2.34	1.06	0	7	20	7	4	w.	W. L. Frantz.
Everett	Bedford	1,080	15	70.6	− 1.3	95	1	45	8	35	3.91	− 0.21	0.60	0	11	4	21	6	nw.	B. L. Steckman.
George School	Bucks	184	6	73.4	.....	96	2†	52	8†	35	3.71	.....	1.26	0	9	20	9	2	nw.	N. W. Swayne.
Gettysburg	Adams	600	39	74.6	+ 0.8	101	1†	49	8	36	3.87	+ 0.40	1.02	0	14	13	15	3	nw.	Col. E. B. Cope.
Gordon	Schuylkill	804	9	69.6	.....	97	1	44	8†	38	6.87	.....	2.08	0	14	22	6	3	w.	Capt. J. G. Johnson.
Hamburg	Berks	380	17	73.5	− 0.8	99	29	51	9	36	2.57	− 2.55	1.00	0	4	21	1	9	sw.	W. J. Kalbach.
Hanover	York	600	9	75.9	.....	101	1	51	8	34	3.30	.....	1.00	0	12	20	9	2	s.	Miss Mabel Champlin.
Harrisburg	Dauphin	361	25	75.6	+ 1.1	98	1	57	26	28	2.92	− 0.95	1.08	0	9	9	14	8	nw.	U. S. Weather Bureau.
Huntingdon	Huntingdon	650	25	71.8	− 0.2	98	1	45	8	37	3.81	− 0.26	1.16	0	12	15	11	5	w.	Prof. W. J. Swigart.
Hyndman	Bedford	977	6	72.7	.....	99	1	44	8	40	2.69	.....	0.45	0	13	14	8	9	w.	H. Somers Fischer.
Lancaster	Lancaster	255	20	73.0	.....	99	30	49	8	36	1.88	− 0.98	0.72	0	10	22	6	3	s.	F. H. Shaw.
Lawrenceville	Tioga	1,006	15	69.0	− 1.1	98	1	40	22	45	2.65	− 1.42	0.70	0	7	16	12	3	.....	C. P. Darling.
Lebanon	Lebanon	458	26	.....	.....	101	29	60	13†	37	0.82	− 3.21	0.21	0	7	24	2	5	w.	Harry M. Schott.
Le Roy	Bradford	1,400	24	69.1	− 0.8	95	1	48	7	28	3.84	− 0.06	1.65	0	13	14	12	5	sw.	G. W. T. Warburton.
Lewisburg	Union	450	39	74.6	+ 1.5	99	1	53	6	45	5.90	+ 1.83	2.20	0	10	28	0	3	.....	Prof. W. G. Owens.
Lock Haven	Clinton	560	25	72.2	− 1.1	97	1	48	22	39	7.41	+ 3.20	2.00	0	9	6	20	5	w.	Prof. J. A. Robb.
Marion	Franklin	640	9	75.5	.....	101	1	53	26	40	3.67	.....	0.95	0	12	18	9	4	.....	Hon. C. B. Hege.
Mauch Chunk	Carbon	634	24	72.0	− 0.5	98	1	49	12†	35	4.19	− 0.80	1.02	0	10	21	6	4	w.	F. C. Wintermute.
Mifflintown	Juniata	445	9	71.5	.....	98	1	49	8†	39	2.92	.....	0.74	0	12	17	9	5	w.	Wellington Smith.
Milford	Pike	455	10	69.2	− 1.4	96	4	44	8†	39	4.83	− 1.35	1.36	0	13	14	16	1	nw.	Mrs. Alla Doughty.

TABLE 1.—*Climatological data for July, 1913. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Pennsylvania—Contd.																				
Montrose	Susquehanna	1,658	9	66.9	.....	93	1	45	11†	32	3.35	.....	0.47	0	12	18	11	2	w.	Silas Jagger.
New Germantown	Perry	873	9	.....	.....	.....	.....	50	8†	.....	1.32	.....	0.40	0	5	19	0	12	w.	Ed. C. Johnston.
Philadelphia	Philadelphia	117	42	78.0	+ 2.2	97	2	61	7	25	4.29	− 0.04	1.40	0	9	13	14	4	nw.	U. S. Weather Bureau.
Reading	Berks	280	40	75.6	+ 0.1	97	29	56	26	28	2.35	− 1.87	1.21	0	9	11	11	9	nw.	Do.
Scranton	Lackawanna	805	13	71.6	− 0.2	96	1	52	26	31	4.97	+ 1.14	1.58	0	10	12	13	6	s.	Do.
Selinsgrove	Snyder	455	25	72.6	− 1.1	99	1	50	8†	42	7.00	+ 2.59	2.99	0	11	0	27	4	nw.	J. M. Boyer, C. E.
Spring Mount	Montgomery	155	24	.....	.....	.....	.....	.....	.....	.....	2.13	− 3.10	0.81	0	8	.....	.....	.....	.....	James F. Smith.
State College	Center	1,191	25	70.8	+ 0.1	93	1	50	11	30	4.81	+ 0.89	1.44	0	11	.....	.....	.....	w.	Prof. Wm. Frear.
Stroudsburg	Monroe	425	3	71.4	.....	96	1	46	12	37	2.31	.....	0.66	0	9	18	11	2	sw.	J. Clyde LeBar.
Towanda	Bradford	754	18	70.0	− 0.9	96	1	41	22	42	2.14	− 1.72	0.55	0	12	17	6	8	nw.	Hiram E. Bull, C. E.
West Chester	Chester	455	59	76.2	+ 2.0	96	2†	57	7	27	2.90	− 2.02	0.93	0	12	18	12	1	nw.	J. C. Green, D. D. S.
Williamsport	Lycoming	530	23	72.2	− 0.9	97	1	52	11†	30	4.74	+ 0.74	1.67	0	11	24	0	7	nw.	Henry H. Guise.
New Jersey.																				
Asbury Park	Monmouth	22	25	72.0	− 0.9	89	2†	58	7†	28	1.96	− 3.29	0.51	0	9	16	14	1	nw.	H. E. Denegar.
Atlantic City	Atlantic	16	40	74.1	+ 1.6	90	19	59	8	23	1.56	− 2.22	0.52	0	8	16	11	4	sw.	U. S. Weather Bureau.
Bayonne	Hudson	50	23	75.4[c]	+ 1.0	96[c]	1†	57[c]	7	28[c]	1.68	− 3.45	0.40	0	8	.....	.....	.....	se.	Erskine R. Eadie.
Belvidere	Warren	289	23	73.6	+ 0.9	97	1	52	8†	33	2.78	− 2.82	0.87	0	8	23	6	2	.....	Samuel J. Hixson.
Bergen Point	Hudson	37	16	75.0	+ 1.6	95	2†	57	7†	28	3.07	− 2.44	1.15	0	8	10	21	0	nw.	Wm. H. Mitchell, M. D.
Boonton	Morris	230	23	.....	.....	.....	.....	.....	.....	.....	2.16	− 3.30	0.77	0	7	.....	.....	.....	.....	Joseph White.
Bridgeton	Cumberland	30	32	77.7	+ 0.6	98	2†	55	8	32	2.09	− 2.34	0.83	0	6	24	4	3	w.	Henry A. Jorden.
Burlington	Burlington	12	27	75.7	.....	97	2	57	26	31	3.83	− 1.20	1.16	0	6	27	1	3	nw.	D. S. B. McCoy.
Cape May City	Cape May	17	35	74.3	+ 0.9	91	2	61	16	24	3.46	− 0.32	1.46	0	7	15	16	0	s.	U. S. Weather Bureau.
Charlotteburg	Passaic	719	21	70.9	+ 1.4	96	1	41	12	39	1.89	− 2.99	0.46	0	8	18	13	0	nw.	George S. Briggs.
Chatham	Morris	234	11	.....	.....	.....	.....	.....	.....	.....	1.70	− 3.21	0.40	0	7	.....	.....	.....	.....	M. A. Butler.
Clayton	Gloucester	126	20	74.7	− 1.3	97	2	55	8	33	3.55	− 0.72	1.04	0	7	27	3	1	nw.	William T. Farley.
Culvers Lake	Sussex	848	12	.....	.....	.....	.....	.....	.....	.....	4.72	− 0.04	1.80	0	12	23	6	2	e.	Brice E. Riker.
Dover	Morris	600	29	71.1	− 0.3	95	1	47	8†	36	2.96	− 2.52	1.04	0	9	9	17	5	.....	William C. Harris.
Elizabeth	Union	45	34	74.4	− 1.1	100	30	44	26	39	1.58	− 3.68	0.61	0	8	20	11	0	nw.	L. B. Bonnett.
Flemington	Hunterdon	140	25	74.6	+ 0.7	98	30	53	9	34	2.79	− 2.17	1.14	0	8	22	8	1	sw.	Hiram E. Deats.
Haddonfield	Camden	75	26	75.1	− 0.4	99	2	56	26	30	1.81	− 2.49	0.68	0	11	12	18	1	nw.	Charles F. Richardson.
Hammonton	Atlantic	103	15	.....	.....	.....	.....	.....	.....	.....	2.10	− 2.59	0.92	0	7	.....	.....	.....	.....	G. F. Lenz.
Highwood	Bergen	90	26	72.6	+ 0.1	95	1	48	8†	34	3.36	− 2.01	2.35	0	8	11	14	6	nw.	Charles J. Bates.
Imlaystown	Monmouth	107	25	75.2	0.0	100	2	52	12	39	2.80	− 2.22	1.35	0	7	20	4	7	s.	H. E. Bullock.
Indian Mills	Burlington	76	24	74.8	− 0.3	99	2	50	26	39	2.42	− 1.64	0.64	0	7	17	13	1	sw.	James Armstrong.
Jersey City	Hudson	10	15	77.0	+ 2.3	98	2	58	7	28	2.05	− 2.73	0.81	0	9	15	14	2	nw.	Samuel K. Pearson, jr.
Lakewood	Ocean	54	11	74.0[b]	+ 0.9	97[b]	1	54[b]	12	32[b]	2.08	− 2.39	0.81	0	7	.....	.....	.....	.....	Ralph Robertson.
Layton	Sussex	550	14	70.0	− 0.2	98	1	44	12	40	3.80	− 0.63	0.89	0	9	27	4	0	w.	Warren C. Hursh.
Little Falls	Passaic	175	11	.....	.....	.....	.....	.....	.....	.....	3.81	− 1.78	1.52	0	9	.....	.....	.....	.....	A. Sweetman.
Long Branch	Monmouth	30	6	72.2	.....	95	13	54	26	32	2.91	.....	0.95	0	10	21	9	1	s.	Wm. D. Martin, jr.
Mahwah	Bergen	312	11	.....	.....	.....	.....	.....	.....	.....	1.51	− 3.86	0.50	0	5	.....	.....	.....	.....	Charles L. Barker.
Moorestown	Burlington	75	51	75.0	+ 0.2	96	2	56	16	32	2.68	− 1.90	1.12	0	6	22	8	1	sw.	George L. Gillingham.
Newark	Essex	159	70	77.0	+ 2.7	100	30	58	7	30	1.94	− 2.79	0.59	0	10	19	5	7	sw.	Prof. William Weiner.
Northfield	Atlantic	25	6	.....	.....	.....	.....	.....	.....	.....	2.07	.....	0.71	0	7	.....	.....	.....	.....	William L. Flick.
Paterson	Passaic	80	42	75.4	+ 1.1	98	30	55	12	31	2.35	− 2.98	0.57	0	13	9	22	0	s.	Heber A. Probert.
Phillipsburg	Warren	363	23	74.6	+ 0.6	98	1	53	8†	36	3.16	− 1.69	2.34	0	9	22	4	5	nw.	D. W. Smith.
Plainfield	Union	100	27	75.2	+ 1.3	100	30	52	8†	35	1.75	− 3.65	0.52	0	8	15	13	3	sw.	John Neagle.
Pleasantville	Atlantic	26	15	.....	.....	.....	.....	.....	.....	.....	1.88	− 2.26	0.88	0	6	25	6	0	.....	Lincoln Van Gilder.
Pompton Plains	Morris	195	11	.....	.....	.....	.....	.....	.....	.....	2.50	− 3.05	1.19	0	6	.....	.....	.....	.....	M. S. Taylor.
Somerville	Somerset	60	30	74.2	+ 0.3	99	30	50	8†	39	3.37	− 1.76	1.67	0	7	24	4	3	nw.	A. A. Macdonald.
South Orange	Essex	200	43	74.2	+ 1.1	94	1†	54	26	29	1.51	− 3.61	0.50	0	6	20	8	3	nw.	Dr. Wm. J. Chandler.
Sussex	Sussex	442	23	74.0[a]	+ 2.3	97	1	48[b]	12†	35[b]	3.27	− 1.25	0.79	0	9	22	3	6	sw.	George Dymock.
Trenton	Mercer	63	42	75.6	− 0.5	97	30	58	7	27	1.50	− 3.85	0.54	0	8	16	8	7	sw.	U. S. Weather Bureau.
Tuckerton	Ocean	23	20	75.1	+ 1.0	95	2	52	8	33	2.53	− 1.37	1.07	0	8	23	8	0	sw.	Frank R. Austin.
Vineland	Cumberland	118	44	76.2	− 0.2	99	30	55	8†	32	2.24	− 2.27	1.33	0	6	19	12	0	sw.	Alfred Chalmers.
Woodbine	Cape May	43	22	75.6	+ 1.7	96	3	53	26	35	2.76	− 1.26	1.70	0	6	30	0	1	sw.	Prof. R. D. Maltby.
West Virginia.																				
Bayard	Grant	2,500	11	68.6	+ 1.0	92	1†	40	8	41	7.21	+ 2.33	1.32	0	15	12	15	4	w.	Solomon Clark.
Burlington	Mineral	875	19	72.0	− 1.0	95	1	46	8	44	3.27	− 0.43	1.05	0	9	8	19	4	w.	J. W. Vandiver.
Franklin	Pendleton	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Fred Calhoun.
Lost City	Hardy	.....	7	70.3	.....	87	1	48	8	26	4.04	.....	1.38	0	13	14	15	2	n.	B. D. Hinegardner.
Martinsburg	Berkeley	435	21	75.8	0	102	5	53	8	33	2.81	− 1.25	1.44	0	12	21	8	2	nw.	G. W. Van Metre, C. F.
Moorefield	Hardy	900	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John C. Fisher.
Romney	Hampshire	824	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. F. Staub.
Upper Tract	Pendleton	1,230	15	72.6	+ 0.1	95	1	45	8†	38	3.50	− 0.34	1.37	0	6	5	23	3	w.	J. M. Mallow.
Maryland.																				
Annapolis	Anne Arundel	45	41	79.3	+ 1.0	101	2	61	7	26	2.12	− 2.97	0.60	0	9	10	3	18	s.	U. S. Naval Academy.
Baltimore	Baltimore	115	43	78.6	+ 1.3	98	2	61	7	24	2.63	− 2.19	0.76	0	10	10	17	4	s.	U. S. Weather Bureau.
Cambridge	Dorchester	25	15	79.2	+ 0.3	100	28	56	26	32	1.57	− 3.71	0.46	0	8	12	18	1	nw.	T. E. Keenan.
Cheltenham	Prince George	230	13	76.6	+ 0.7	97	2†	50	8	33	1.54	− 2.67	0.36	0	8	19	5	7	sw.	George Hartnell.
Chestertown	Kent	80	27	77.0	+ 1.1	97	29	58	8†	28	1.47	− 2.69	0.65	0	5	16	15	0	s.	M. P. Thomas.
Chewsville	Washington	530	16	75.0	+ 0.5	99	1†	47	8	36	2.43	− 1.43	0.76	0	12	12	19	0	sw.	D. Paul Oswald.
Clear Spring	...do...	650	15	71.6	− 2.2	95	1	54	7†	32	3.83	− 0.43	1.11	0	11	18	12	1	w.	W. W. Frantz.
Coleman	Kent	80	13	77.4	+ 0.5	97	2†	59	7	30	2.16	− 2.42	1.00	0	6	21	7	3	sw.	J. S. Harris.
College Park	Prince George	170	22	76.6	+ 1.3	100	29	48	8	40	1.44	− 3.21	0.66	0	7	19	10	2	s.	Prof. H. J. Patterson.
Cumberland	Allegany	623	39	75.6	.....	101	2	50	8	32	2.42	− 0.80	0.59	0	11	13	11	7	s.	Francis E. Harrington.
Darlington	Harford	300	22	73.8	− 0.9	94	2	32	26	30	4.11	− 0.66	1.35	0	12	15	14	2	sw.	Prof. A. F. Galbreath.
Denton	Caroline	42	18	77.2	+ 0.6	100	29	50	26	38	0.78	− 3.30	0.25	0	4	25	6	0	sw.	H. B. Mason.
Easton	Talbott	35	22	76.9	+ 0.5	94	29	55	26	32	2.74	− 1.52	1.71	0	7	25	6	0	w.	Henry Shreve.
Emmitsburg	Frederick	720	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	James J. White.
Fallston	Harford	450	43	74.0	− 0.3	93	2†	55	8	27	4.73	+ 0.34	0.86	0	11	1	28	2	s.	J. H. Curtiss.
Frederick	Frederick	275	38	77.4	+ 1.2	102	30	52	8	36	4.00	+ 0.16	0.82	0	11	18	2	11	sw.	Chas. S. Birely.
Frostburg	Allegany	1,929	6	71.9	.....	96	1	49	8	36	5.47	.....	1.34	0	14	11	20	0	.....	R. A. Walter.
Great Falls	Montgomery	200	23	76.4	+ 0.5	98	30	50	8	34	3.01	− 1.17	0.99	0	6	20	7	4	ne.	Chas. E. Sullivan.
Green Spring Furnace	Washington	450	21	75.4	0.0	102	1	51	8	35	3.66	− 0.24	1.14	0	11	22	7	2	nw.	E. G. Kinsell.
Keedysville	...do...	400	9	75.8	.....	101	1	49	8	35	2.94	.....	1.60	0	7	18	12	1	s.	J. A. Miller.
Lake Montebello	Baltimore	200	4	76.8	.....	98	2	56	8†	29	3.40	.....	0.85	0	9	26	3	2	s.	Martin L. Dobler.
Laurel	Prince George	150	19	74.6	− 1.3	97	2	50	8	33	2.85	− 1.99	1.18	0	9	14	17	0	.....	Dr. T. M. Baldwin.
Leonardtown	St. Marys	100	3	79.0	.....	100	29	57	22	32	0.72	.....	0.23	0	8	18	11	2	s.	Brother Fidelis.
Monrovia	Frederick	630	28	76.0	− 0.2	98	28†	51	8	32	2.05	− 2.40	0.44	0	7	17	11	3	s.	J. H. Lawson.

TABLE 1.—*Climatological data for July, 1913. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Maryland—Continued.																				
Pocomoke City	Worcester	37	20	78.8	+ 0.9	96	29	59	8	23	1.91	− 1.88	0.65	0	6	25	5	1	sw.	Hon. R. M. Stevenson.
Princess Anne	Somerset	17	20	75.9	+ 0.1	95	29	53	8	29	1.83	− 3.20	0.75	0	9	3	21	7	sw.	J. R. Stewart.
Rockville	Montgomery	421	6	.....	.....	100	29	54	26	32	1.49	.....	0.73	0	8	12	19	0	sw.	W. E. Downing.
Salisbury	Wicomico	23	8	78.4	.....	100	29	54	26	32	1.49	.....	0.73	0	8	12	19	0	sw.	W. E. Downing.
Solomons	Calvert	20	22	80.0	+ 1.7	98	5†	62	7	25	0.62	− 3.86	0.39	0	5	3	15	13	sw.	Dr. W. H. Marsh.
State Sanatorium	Frederick	1,450	6	73.2	.....	94	29	50	7†	28	3.22	.....	0.95	0	11	18	3	10	w.	Superintendent.
Sudlersville	Queen Anne	65	15	76.6	0.0	101	29	53	26	34	1.50	− 3.65	0.56	0	6	21	7	3	w.	Henry L. Higman.
Takoma Park	Montgomery	320	15	76.0	+ 0.7	95	29†	57	8	24	2.90	− 2.23	1.85	0	6	2	24	5	.....	L. M. Mooers.
Towson	Baltimore	465	5	76.2[a]	.....	98[a]	2	53[a]	26	32[a]	3.18	.....	0.98	0	9	26	3	2	se.	C. W. E. Treadwell.
Van Bibber	Harford	100	16	75.0	− 0.9	98	2	52	26	35	3.24	− 1.77	1.35	0	9	21	3	7	.....	W. Benj. Ford.
Westernport	Allegany	1,000	19	73.8	+ 0.5	98	1	48	8	36	3.84	− 0.19	1.03	0	10	.....	.....	.....	.....	Prof. O. H. Bruce.
Westminster	Carroll	860	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. G. F. Morelock.
Woodstock	Baltimore	392	43	77.8	+ 2.7	97	2	56	8	27	3.19	− 0.43	0.82	0	13	13	15	3	nw.	Rev. J. F. Dawson, S. J.
Delaware.																				
Delaware City	New Castle	10	6	77.3	.....	96	30	58	8	30	0.53	− 3.40	0.19	0	4	29	1	1	sw.	H. Morton Price.
Dover	Kent	20	25	77.0	+ 0.2	98	30	50	8	33	1.70	− 3.16	0.63	0	5	14	14	3	w.	W. C. Josting.
Millford	do	20	29	76.4	− 0.4	96	2	54	26	28	1.67	− 2.07	0.80	0	8	23	7	1	sw.	C. J. Holzmueller.
Millsboro	Sussex	20	21	77.1[a]	+ 0.8	96[a]	2	56[a]	8	31[a]	1.68	− 3.38	0.60	0	7	21	10	0	w.	Rev. L. W. Wells.
Seaford	do	40	22	76.8	+ 0.6	96	2†	54	26	30	3.20	− 1.94	1.21	0	9	22	9	0	s.	E. B. Brown.
Wilmington	New Castle	86	2	78.6[b]	.....	98	2	63[b]	11†	24[b]	4.55	+ 0.11	1.85	0	8	23	6	2	nw.	Alex. J. Taylor.
District of Columbia.																				
Washington	Dist. of Columbia	112	43	77.6	+ 0.8	97	29	58	26	31	3.24	− 1.41	2.02	0	11	13	13	5	s.	U. S. Weather Bureau.
Virginia.																				
Culpeper	Culpeper	450	5	75.3	.....	92	31	51	8	31	2.17	.....	0.95	0	10	12	17	2	s.	Col. H. C. Burrows.
Dale Enterprise	Rockingham	1,350	34	73.2	− 0.7	95	1	45	8†	40	4.76	+ 0.34	1.53	0	17	6	23	2	s.	Rev. L. J. Heatwole.
Eastville	Northampton	15	3	77.0	− 1.5	98	2	56	25	30	5.18	+ 0.68	1.87	0	9	11	20	0	sw.	T. B. Robertson.
Fredericksburg	Spottsylvania	100	24	76.8	− 0.3	96	29	54	8†	28	2.03	− 2.55	1.06	0	7	20	8	3	se.	S. G. Howison.
Lincoln	Loudoun	500	12	75.6	− 0.5	97	27	51	25	36	2.60	− 1.18	0.65	0	9	14	17	0	nw.	Dr. Geo. Roberts.
Mount Weather	do	1,726	9	71.6	+ 0.2	90	29	51	7	22	2.24	− 2.42	0.81	0	11	8	18	5	nw.	U. S. Weather Bureau.
Quantico	Prince William	16	16	76.0	− 0.7	95	2†	52	26	33	1.10	.....	0.52	0	4	25	6	0	ne.	R. F. & P. R. R.
Staunton	Augusta	1,380	21	75.0	+ 0.9	95	1	50	8	32	7.04	+ 3.28	2.84	0	16	6	21	4	sw.	Earnest Northnagel.
Swetnam	Fairfax	300	1	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.48	0	9	20	4	7	s.	Potomac Elec. Pow. Co.
Warsaw	Richmond	160	21	77.8	+ 0.4	97	2	55	8	30	4.30	− 0.41	1.32	0	8	10	18	3	s.	C. H. Constable.
Winchester	Frederick	717	2	76.8	.....	97	1	58	26	29	4.41	.....	1.05	0	8	19	9	3	w.	Bentley Kern.
Woodstock	Shenandoah	927	17	75.2	− 0.7	96	1	52	8†	31	3.46	+ 0.01	1.09	0	10	15	15	1	w.	Mrs. A. G. Artz.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Presipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 1, North Atlantic States.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maine.																																	
Ashland	St. John						T.				1.23			.20		T.	T.		1.00	.05	T.	.85											3.38
Bar Harbor	Coast	.05																														
Cambridge	Kennebec																															
Cornish	Saco		T.			.67	.11		T.		.51			.14		.04	.20		T.		.04	.23			.07				.07	.04	T.		2.12
Danforth	Penobscot	.27					.20				.45			.94					.80		.16	.64		.24					.10			3.80
Eastport	Coast	.16					.40	.04			.37	.02		.14	T.	T.	T.	.05	.55	.05	.03	T.			.02	.84			.01				2.68
Eustis	Kennebec	.42				T.	.08		.02		.97	T.		.31	T.	.01	T.	.21	.18	T.	.15	.01			.47	.03			.24	T.			3.10
Fairfield	....do									.15	.78					.58																1.51
Farmington	....do	.05					.30				1.20	.05		.20		.22	.17	T.	.22		.04	.05			.04	.26			.10				2.90
Cardiner	....do								.03		.73			.13		.19	.24		.04		.11	.08			.06				.01				1.62
Greenville	....do	1.27					.03				1.51			.22	.06			.30	.34	.10	.14	.18		.04	.64	.10			.08	T.			5.01
Houlton	St. John										.03		T.			.01						1.30				.10	.20					1.64
Howe Brook	Penobscot	.08									.82			.20	.60	.25		.28	.60	.45	.50				.20				.30	.20			4.48
Lewiston	Androsc'g'n						.07				.62			.02		.03	.11		.01		.21	.36			.05				.05				1.53
Madison	Kennebec						.18				1.15		.10			.15			.50		.03	.07			.89								3.09
Millinocket	Penobscot					.05				.19	1.18		.14	.24		T.	T.	.06	.02	.83	.01				.71	.02			.04	T.			3.49
North Bridgton	Saco					.12					1.14			.06			.09		.05		.31	.05			.10			11					2.03
Orono	Penobscot	1.52					.24			.28	1.27	.27		.18	.23	.20				.11	.14	.41			.30	.15	.26			.30			5.86
Patten	....do	1.00			T.						1.00				T.				T.						1.00	1.00							4.00
Portland	Coast		T.			1.10	.01		T.		.43			.01		T.	.28		.16	T.	T.	.23			.02				.02	T.	.01		2.27
Presque Isle	St. John	.28			.10	.05	.06				.62	1.02		.45	.15	.05		.55	.92	.25	.03				T.	.26			.36	.03			5.18
Rumford Falls	Androsc'g'n						.42				1.21		.10	.03		T.	.17		.20		.05	.32		T.	T.				.15		T.		2.65
The Forks	Kennebec																															
Van Buren	St. John	.63			.40						.48	.29	.09	.31	.25	.04	T.	.14	.26	.28	.09				.24		T.		.05				3.53
Winslow	Kennebec								.27	.85				.10		.30			.05			.05		.01	.01				.01				1.65
New Hampshire.																																
Alstead Center	Connecticut		T.			.30	.65	.01	.09		.58			.70	.07				.04	.54		T.			.17	.01			.55				3.71
Benton	....do																															
Bethlehem	....do				T.	.51	.01	.03			1.41			.21	T.				.49	.24	.01	.02			T.	.32			.79	.02	.02		4.08
Brookline	Merrimack								T.				.15	T.					.10						T.				1.10	T.			1.35
Concord	....do		T.			.56	.02	T.	T.		.17		.06	.01					T.	.06		.06			.11				.18	.02			1.25
Durham	....do										.12		.01						.15			.56			.08				.06				0.98
Franklin	....do						2.75				.29			.29						.04					.10				.30	T.	.05		3.82
Grafton	....do																															
Hanover	Connecticut		T.	.01		T.	.10	T.	.10		.51	.02		.03	T.				.11	.02	T.	.01		.30	.03				1.15	.77			3.16
Keene	....do		T.			T.	.06	T.	.08		.17			.33	.15				.09	.13	.20	T.			.15	.03			.62				2.01
Nashua	Merrimack																															
Newton	....do					.06					.72			.05			T.		.20		T.	.03			.03				.20				1.29
Plymouth	....do						.75		T.		.48			.05						.33	.10			T.	.09				1.05				2.85
Vermont.																																
Bloomfield	Connecticut					.01	.99	.06	.01		.68	.28		.29	.07	.04	.02		.52	.06	.04	.05			.05	.20			1.00	.35	.05		4.74
Cavendish	....do		.03			.30			.11		.35				.28				.03	.23	.03	.03		.20	.55	.03			.60	.01	.05		2.83
Chelsea	....do					.01	.06	T.	.03		.46		.18						.14		T.			T.	.03	.04			1.98		T.		2.93
Manchester	Hudson																															
Somerset	Connecticut		T.			.02	.06	.13	.18		.36			.93	.46				.24	.17		.04			.29				.78				3.76
St. Johnsbury	....do					T.	.06		T.		.47			.44	.04				.14	.45	.05	.01			.70	.11			4.99	T.	.10		7.56
Vernon	....do																															
Woodstock	....do		.13			.88					.17								.62					.41	T.				.87				3.08
Massachusetts.																																
Amherst	Connecticut		T.						T.		.03		.30	.14					.14		.06	.01		T.	.03				.86	.02			1.59
Ashland	Merrimack						.09				.97		.05	.03					.27		.04				.14				.59	.02	.03		2.23
Bakers Bridge	....do						T.				.38				.12				.39			.07			1.10				.71				2.77
Bedford	....do						.02	T.			.34			.10	.04				.24		.04	.01			.28	.09			.70				1.86
Blue Hill	Coast					T.	T.		T.	T.	.89		T.	.01	.11				.27		.03	T.			.07	.06			.42	T.	.14		2.00
Boston	....do						T.		.02	.05	.62		T.		.04				.25		T.	T.			.19	.04			.57		.91		2.69
Chestnut Hill	....do						T.		T.	.63	.06		T.	.10	T.				.40		T.	T.			.30	T.			.66	T.	.10		2.25
Clinton	Merrimack						.06		.07	*	.15		.13		.12				.25		.09				.12				.87	.07	.03		1.96
Concord	....do																															
Fall River	Coast									.07	.79			.01	.09				.50						.06	.04			.18	.14	.99		2.87
Fitchburg	Merrimack						T.	T.	.05		.04			.23	.01				.07	.06	T.	T.			T.				.75		.53		1.74
Framingham	....do						.01				.64		.05		.03				.22		.05				1.36				1.34	.10	.22		4.02
Haverhill	....do					T.	T.			T.	.27			.08					.21	.03		T.	.03		.01	.04			.20		.08		0.95
Hingham	Coast						T.				1.07				.18		T.		.28		T.	.28			.29				.33	.05	T.		2.48
Hyannis	....do										.42								.38							.07					.05		0.92
Jefferson	Merrimack						.29		.08	.19			.15		.40				.15		.07				.23				1.14	.97			3.67
Lake Cochituate	....do					T.	.01				.83		.03	.02					.20		.05				.89				.96	.02	.02		3.03
Lawrence	....do					T.	T.			T.	.31		*	.11	T.		T.		.21	T.	T.				.07				.39		T.		1.09
Leominster	....do		T.				T.	T.	.04		.06			.13	.03				.13		T.				.01				.72	T.	.57		1.69
Lowell	....do						.03		.02		.26			.10					.11		.04				.07				.58				1.21
Middleboro	Coast									.01	1.07				.06				.41			T.			.10				.15				1.80
Nantucket	....do						T.				.10								.37							.03					.08		0.58
New Bedford	....do										.59								.42	.03											.83		1.87
Norfolk	....do									T.	1.28								.38			.18			T.				.46	.89	1.32		4.51
Plymouth	....do										.70		T.		.12			.08	.55			.02			*	.06			.07		.04		1.64
Princeton	Merrimack						.05		.04	.06				T.	.05				.07		.38				.28				.76	.18			1.87
Provincetown	Coast										.76		.20						.64														1.60
Rockport	....do						.30				.75								.24			.22			.22	.18			.08				1.99
Rutland	Connecticut																															
Somerset	Coast										1.32			.29					.31			T.			.15				.21	.51	.06		2.85
Spot Pond	....do						.31		.01	.64	.14		.02	.03					.34		.02				1.71				.49		.17		3.88
Springfield	Connecticut								T.		.03		.21	T.					.09		.08				.24				.72	.02			1.39
Sterling	Merrimack						.21		.03		.09			.11					.18		.23				.07				.68	.06	.08		1.74
Taunton	Coast																															
Turners Falls	Connecticut										.05		.12						.04	.08		.15			.12				.41		.05		1.02
Westboro	Merrimack						T.				.45		*	.10					.20		.05				.85				1.12	T.	.50		3.27
Williamstown	Hudson		.01			T.	.10				.74		T.	.94	.14				.27		T.				.22	.03			1.08		.35		3.88
Winchendon	Connecticut					T.	T.	T.	.06		.03			.16					.06	.10					.07				.50				0.98
Worcester	Coast						.01	T.	T.		.68			.01					.25		.04				.69				.58	.30	T.		2.56
Rhode Island.																																
Block Island	Coast		T.								.14			.07					.46	.01		.02			.30	.05			.09		.09		1.23
Bristol	....do									*	.86				T.				.51						*	.25			.14	.87	.06		2.69
Greene	....do									T.	.71			.02	.25				.31					.10	.12				.49	.03	.26		2.29
Hope Valley	....do									T.	.79				T.	.10			.69						.31	.20		.73			.53		3.35

TABLE 2.—*Daily precipitation for July, 1913. District No. 1*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Rhode Island—Con.																																
Kingston	Coast									*	.61							T.	.86					T.	.24			T.	.48	T.	.75		2.94
Narragansett Pier	do										.44			T.	T.				.43			.02			.12	.30			.27		.71		2.29
Pawtucket	do									*	.75			T.	.23				.50		T.				2.10			T.	.31	*	.16		4.05
Providence	do									.14	.50		T.	.05	.02				.50			T.			.41				.25	.17	.25		2.29
Wallum Lake	do																																
Connecticut.																																
Bridgeport	Coast		T.			.07			.07	T.	.46		.05	.17				T.	.29		T.				.83	.05			.06				2.05
Canton	Connecticut								.29		.17		T.	.37					.11						T.				.42				1.36
Colchester	Coast								T.	T.	.50			.30	.15				.18						.28	.12			.17				1.70
Cream Hill	Housatonic	.09					T.	T.	.32		.02		.15	.26					.11		.05				.21				.16				1.37
Danielson	Coast										.87			.10					.22		T.				1.11	.08			.55		.25		3.18
Falls Village	Housatonic	.41							.19	.03			.06	.16					.05	.10				.09	.06				.30				1.45
Hartford	Connecticut		T.				T.		.02	T.	.17		.31	.10					.11		.12			T.	.39				.61	T.			1.83
Hawleyville	Housatonic								.20	.02			1.05						.13	.23					.14				.48				2.25
Lake Konomoc	Coast										.70								.39							.80				.20			2.09
New Haven	do					.01	T.		.12	.01	.47		.15	.03	T.				.34		T.	T.			.41			T.	.15	T.	T.		1.69
New London	do									.51			T.	.09					.30						.26	.29			.11			.15	1.71
N. Grosvenor Dale	do										.73			.11	.12				.18		.06				.09	.04			.43				1.76
Norwalk	do										.35		.13						.21						.30				.05				1.04
Southington	do		T.								.10			.45	.10				.10		T.				T.	.20			.25	T.			1.20
South Manchester	Connecticut								.02				.38						.14		.08				.20	.20			.55			.01	1.58
Storrs	Coast								T.		.63		.50	.17					.16		.15				.10				.96		1.58		4.25
Torrington	Housatonic																																
Voluntown	Coast										.70				.04				.15							.26			.46				1.61
Wallingford	do								.05	.43			.53	.02				.04	.13						.75				.18				2.13
Waterbury	Housatonic		.03						.18		.21		*	.38	.09				.11		T.				T.	.09			.27				1.36
West Simsbury	Connecticut																																
New York.																																
Addison	Susq'hanna		.12			.28	T.		T.	.14	.02	.17		.10	.02			.28	.02		.13			.17	.46	.03		T.	.08				2.02
Albany	Hudson		.01			.29			T.	.01	.11		.36	.08					T.		.09	T.	T.	.01	.23	T.			.63	T.			1.82
Alfred	Susq'hanna						.03			.28			.13	.60				.21			.37			.17	.23			T.	.01				2.03
Amsterdam	Mohawk		T.			.02	.42			T.	.29		.01	.30	.10				.01		T.	.70			.44	.02			.32	.01			2.64
Athens	Hudson		T.			T.		T.	.02	T.	.08		.48	T.				T.	T.		T.			.04	.12				1.12				1.86
Bainbridge	Susq'hanna																																
Ballston Lake	Hudson	T.	T.			.52	.05		T.	T.	.60			.31	.08							.21	T.	.08	.35				1.32	.01			3.53
Bedford	Coast		T.			.06			T.	.03	.36		.65	.54					.20	.03		T.			.23				.06	.01			2.17
Beerston	Delaware		.02			.25	T.		.24	.02	.16		.64	.02					T.	.04	.01			T.	.38				.27				2.05
Binghamton	Susq'hanna		.03			.25	T.	T.	.03	.13			.26	.02				.01	.02		T.			T.	.73				.07				1.55
Bouckville	do							.04		.06	.57		.26		.33				.02			.05			.15	.02			.32				1.82
Carmel	Hudson					.15			.02	.13			.58	.07					.10						.11				.49				1.65
Chatham	do		.01			T.			.10		.22			.72	.13						.10			T.	.32	.25			1.06				2.91
Cooperstown	Susq'hanna					.15	.64	.07	.05	.31			.14	.20				.06			.15				.50				.04				2.31
Corinth‖	Hudson										.27			.30						.35						.13				.18			1.23
Cortland	Susq'hanna		.04			.19			.08	.02	.25				.68				.01						.35	.02			.08				1.72
Cutchogue	Coast		T.								.28			.02					.12			.05			.10	.05			.10				0.72
De Ruyter	Susq'hanna		T.			.11				.08	.82		.39	T.	.30				T.						.40								2.10
Elmira	do		.01		.19	.02	T.			.34			.02	.01				.22						.02	1.03								1.86
Glens Falls	Hudson		T.								.01			.03					.92		T.	.15			.06				.33				1.50
Gloversville	Mohawk									T.	.54		T.	.38	.06				T.	T.	T.	.26			.30	.02			.47				2.03
Greene‖	Susq'hanna					.25									.18				.38	.10				.14		.43							1.48
Greenfield Center	Hudson						.25			.60				.21					.10			.07		.06	.20				1.20				2.69
Griffin Corners	Delaware																																
Hancock	do						.09			.31	.35			.75	.08				.09			.12				.43				1.20			3.42
Haskinville	Susq'hanna		.15			.10	T.	T.	T.	.19			.10	.20				T.			.45				.38	.09							1.66
Homer	do																																
Hoosick Falls‖	Hudson			T.						.10	.80			.15	.35						.17	T.				.02	.47			1.05			3.11
Indian Lake	do			.10					.05		1.50		.25		.05						.05	.08			.15				.80				3.03
Jeffersonville	Delaware		T.			.52			.10	T.	.60		.32	.42					.22		.42			.12	.99				.77				4.48
Liberty	do																																
Little Falls	Mohawk						T.	T.		T.	.35		.05								T.					.10			.85				1.35
Mechanicsville‖	Hudson					.04				.52			.30								.13				.40				.42				1.81
Mohonk Lake	do												.25	.05	.10				.20			.02		.10	.16			23					1.11
Morehouseville	Mohawk								.37	.07	1.09		.28												.92								2.73
Morrisville	Susq'hanna						.06				.06		.30																				0.42
Mount Hope	Coast					.47			.18					.33					.32						.27				.73				2.30
Mount McGregor	Hudson								.02	.45				.25								.37		.17	.38				.49				2.13
Newark Valley	Susq'hanna		.02			.30			.03	.20			.17					.01			.23			.04	.58								1.58
New Berlin‖	do						.15				.15	.05		.32	.58				.02							.04							1.31
New Lisbon	do						.58	.04	.06	.02	.18		.08	.08	.35				.03						.89	T.							2.31
New York City	Coast		T.			1.06			T.	T.	.35		.28	.05				T.	.09		T.			T.	.57				.62				3.02
North Creek	Hudson																																
Northville‖	do								.10	.30			.35						.15					.30					1.52				2.72
Norwich	Susq'hanna																																
Oneonta	do					1.72					.09		.07	.69					.04		T.				.47				T.				3.08
Oxford	do		T.			.59	T.		T.	T.			.45	.16	.31				.05	.05				T.	.35	T.			T.				1.96
Oyster Bay	Coast																																
Port Jervis	Delaware	T.				2.89				.27	.15		.42	T.				T.	.22		.05			.21	.32				2.39	T.			6.92
Roslyn	Coast					.01					.26		.12	.09	.02				.36			.01			.35	.04			.30				1.56
Salisbury	Mohawk						.08	.03			.93		.54						.07						.61	.06	.06		.91				3.29
Scarsdale	Coast		T.			.55			T.	T.	.34		.23	.25					.30						.34				.44				2.45
Setauket	do		T.			T.			T.	T.	.27		T.	.20					.21		T.				.18	T.			.05				0.91
Sharon Springs	Mohawk		.05								.90		.20	.50					.05		T.				.70				.42				2.82
Sherburne	Susq'hanna				.02							.30	.03	.37		.30										.13	.28							1.43
Southampton	Coast		T.			T.					.16			.03	T.				.11			T.			.33	.10			.05				0.78
South Edmeston	Susq'hanna		.01			T.			.03	.01	.27		.30	.02	.17			T.	T.		T.				.57								1.38
Spier Falls	Hudson								.09	.13			.35						.14		T.	.06							.28				1.05
Trenton Falls‖	Mohawk						.10	T.			.22	T.		.23					T.			T.	.03		T.	.22					.88		1.68
Tribeshill‖	do									.60			.30	.40							.10	.10			.70				.50				2.70
Troy‖	Hudson				*		*	.10		.18	.15			*	.65						*	.01	.09		.06	.50		*	.35	.02			2.11
Utica‖	Mohawk						.17				.43		.05	.13	.10								.45		.13	.51			.69	.85			3.51
Wading River	Coast		.01						T.		.15			.03	.14				.20						.05				.02				0.60
Wappingers Falls	Hudson					.18			.10	T.	T.			.22					.20		.08			.28	.16				.22				1.44
Warwick	do					.43			T.	.03	.20		1.48	T.	.05				.12		.14			.25	.10				.10				2.90
Waverly	Susq'hanna		.02			.17	T.	T.		.14	.07		.02	T.	.17			.14	T.		.04			.01	.37	.08							1.23
West Berne	Mohawk					.47	.09		.05	T.	.03			.65							.35				.39				.42				2.45
West Point	Hudson					.11		.23		T.				.78	.29				T.					.17	.12				.26				1.96
Windham	Mohawk		.08			.16			.15		.57		.55	T.					.08					T.	.54				.15				2.28

TABLE 2.—*Daily precipitation for July, 1913. District No. 1*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Pennsylvania.																																	
Allentown ‖	Lehigh					.40				2.24			T.		.24			.25						.43	.02							3.64
Altoona	Susquehanna				.27	1.86	.14			.42	.21		.24					.24	.06		.27			.02	.20			.36			.55		4.84
Ansonia ‖	do			.05		1.58		.04		T.	.49			.35	T.				.08			.34			.25	.30				.20			3.68
Austin	do		.25		1.63	.35	.10			1.62	1.30		.10	.20				.18			.20			.35									6.28
Bethlehem	Lehigh									.04	2.35			.02					.02					.03	.01	.03							2.50
Bloserville	Susquehanna	.14	.63			.27	.06			.42	.12		.31	.03		T.		.10			.05			.24	.19			T.	T.		.15		2.71
Browers Lock	Schuylkill					.15						.27	.67												.80				.40	.27			2.56
Catawissa	Susquehanna	.08	T.			.15	T.			.97			.36	.47				.22			.06			1.09	.49				.09				3.98
Coatesville	Coast					.55				.29			.32					.08				.10			.32				.35		.18		2.19
Doylestown	Schuylkill					4.55					.53		.13					.10											.73				6.04
Drifton	Susquehanna	.03	.02			.15			T.	.15	.75		.40	.25	.47			.25	.05		.05			.62	.88	.08				.35			4.50
Emporium	do		.18		1.75	.61	T.			1.10	.35		.16	1.40				T.			.04			.31	.41			T.					6.31
Ephrata	do		T.			.21				.15			1.06	T.				.02				.01			.17						.44		2.06
Everett	Juniata		.53		T.	.41				.46	.30		.08	T.		.41		.60					.13		.49			.14			.36		3.91
Forks of Neshaminy	Delaware					.98				.13			.35												1.56				1.38				4.40
George School	do					1.25				.04	.13				.40				.04						1.26	.05			.12	.45			3.71
Gettysburg	Potomac		.37			.21	.15			.83	.14			.51		.03		.29	.02		.06	.20		.01	.03						1.02		3.87
Girardville	Susquehanna					T.	T.			2.31			.84	.81				.15	.07		.12			2.59					.44				7.75
Gordon	do					.33				.13	2.08		.87	.13	.26			.06	.04		.04			.74	1.71	.06			.31	.11			6.87
Hamburg	Schuylkill									.24	1.00	.69												.64									2.57
Hanover	Susquehanna		.37			.08	.11			.61	.11		.15					.05	.12			.53				.06				.11	1.00		3.30
Harrisburg	do	T.	.02			1.02				.32			.16		T.	T.		.08			.11			1.08	.10				.03	T.			2.92
Huntingdon	Huntingdon	T.			T.	.21	.03	.08		.26	.70		.10		.34			.37			.06			.15	.35						1.16		3.81
Hyndman	Potomac					.11	.04	.04		.22	.26		.08			.45		.17			T.			.28	.28	.20		T.	.37	T.	.19		2.69
Kennett Square	Coast		.09			.10				.98			.37					.10							.06					.48			2.18
Lancaster	Susquehanna		.25			.72	.05			.31	.07		.25						.02			.04			.17	.02							1.88
Lansdale	Schuylkill					2.09					.14		.31					.06						.31					.23				3.14
Lawrenceville	Susquehanna					.30	.10			.60			.15	T.				.70			.20				.60				T.				2.65
Lebanon	do						.15			.08	.20		.08		.06									.21	.04								0.82
Le Roy	do	T.	.08			.10				1.65	1.01		.50	.08				.22				.24			.25	.46	.18		.02	.05			3.84
Lewisburg	do	.10	.04			.05		.12		.34	1.70		.25		1.00						.10			2.20									5.90
Lloyd	do					.42	.61		.56	.52			.30	.22	.15			.30			.45	.14		.30	.33				.12				4.42
Lock Haven	do		.05			1.50	.05			1.20			.57	.91				.03			T.			1.10	2.00			T.	T.				7.41
Marion	Potomac					.52	.24			.95	.32		.40			.06		.18	T.		.25	.07		.37	.22					T.	.09		3.67
Mauch Chunk	Lehigh					.14				.12	.66		1.20	.64				.10	.25					.37	.86				.03				4.19
Mifflintown	Juniata		.04			.02				.29	.66		.22					.02	.05		.14			.06	.74						.61	.07	2.92
Milford	Delaware					1.36			.06	.05	.74		.35	.05	.16				.04		.10	.13		.23	.24				1.32				4.83
Montrose	Susquehanna					.16			.27	.40	.22		.32	.10	.47			.35		.10				.16	.45	.35			T.				3.35
Mountain House	Juniata					.66	.88			.55	.47			.25		.18		.38			.07			.15	.37	.04					.25		4.23
Mount Gretna	Susquehanna	T.	.07	T.		.38	.04			.14	.13	.12	.86	T.		T.		.02	.15		.02	T.		T.	.16	T.	T.						2.09
New Germantown	do		.40			.20				.20		.35													.17								1.32
Ottsville	Delaware					1.48				.04	1.40		.29	.21					.11						.45				.21				4.19
Philadelphia	do		.40			.17				.15			.58					.10	.01						1.40				.01	.47			4.29
Point Pleasant	do					1.07					1.07		.37	.12															.15				2.78
Pottsville	Schuylkill					.88				2.77	.04		.52	.11				.09	.03					.49	.36				.05				5.34
Reading	do		.01			.08				1.19	.02		.90	.03				T.	T.		.02			.07	.03				T.				2.35
Renovo ‖	Susquehanna					.03	.89			.15	1.44			.40	.90				.13			T.			1.20	.41			.82	.22			6.59
Scranton	do	.04	T.			.27			T.	.72			.53	.21				T.	.02		.76			1.09	.55				.78				4.97
Seisholtsville	Schuylkill					1.50				.11	1.02		.17		.04			.16			.08			.34									3.42
Selinsgrove	Susquehanna		T.			.22		.18		.33	2.99		.54	.04	.46			.02			.07			.92	1.23					T.			7.60
Shawmont	Schuylkill					1.35					.10		.40						.10						.30				.05	.30			2.60
Shippensburg ‖	Susquehanna						.36				.92		.43			.01		.16					.02		.14	.36							2.40
Smiths Corners	Schuylkill					1.38					1.15		.38	.08															.42				3.41
Spring Mount	do					.19				.03	.81		.57											.02		.21			.26	.04			2.13
State College	Susquehanna	T.	.10		.04	1.09	T.			.37	.22		.34					.10			.01			1.13	1.44			T.	T.	.02	.05		4.81
Stroudsburg	Delaware					.09			T.	.06	.45		.23	.53	.27			T.	.06					.54	.08				T.				2.31
Sunbury	Susquehanna	T.	T.			.18		.05		.04	2.14		.22	.41	.14			.05	.04		.06			.70	1.17						T.		5.20
Towanda	do		.03			.09	T.		.02	.51	.16		.40	.18				.05			.05			.07	.55	.03			T.				2.14
Weikert	do	.16				.49				.31			.34	.36				.12			.30			1.76	.10								5.94
West Chester	Coast					.40				.14	.18		.56					.06	.13			.05			.18	.02			.03	.93	.22		2.90
Wilkes-Barre ‖	Susquehanna		1.03				.02			.09	.75			.35	.24				.04			.37			2.38	.25				.17			5.69
Williamsport ‖	do			.04		.10	.25			.02	.74			.08	.87				.26			.11			1.67	.60							4.74
New Jersey.																																	
Asbury Park	Coast					.25			.03	.10	.14		.31	T.				.02	.19		T.				.41				.51		T.		1.96
Atlantic City	do		.46							.04	.01		.38					.02	.50						.10				.05	T.			1.56
Bayonne	do					.24	T.				.40		.03	.27	.04				.20						.33	T.			.17				1.68
Belvidere	Delaware					.14				.06	.58		.87	.28										.36		.08			.41				2.78
Bergen Point	Coast					.55			T.	T.	.39		.38	.06				T.	.22			.04		T.	1.15				.28				3.07
Boonton ‖	Passaic					.06					.77		.75	.27					.10					T.	.03				.18				2.16
Bridgeton	Cumberland		.40			.08				.13			.18					.83							.47					T.			2.09
Burlington ‖	Delaware						1.00				.08			.29					.15							1.16					1.15			3.83
Cape May City	Coast		1.46				.06			.05			.66		T.			.20	.47						.56									3.46
Charlotteburg	Passaic					.43			.09	.46				.33	.20				.11		T.			.20	.07				T.	T.			1.89
Chatham ‖	do						.15				.35			.40	.15				.35	T.						.05				.25			1.70
Clayton	Coast		1.04			.16				.60			.42		T.										.48					.70	.15		3.55
Culvers Lake	Delaware					1.80			.07	.05	.56		.55	.02	.36				.01		T.			.63	.27	.06			.34				4.72
Dover	Passaic					.05				*	.90		.70	.34					.14					.10	.05				.68				2.96
Elizabeth	Coast					.18			T.	.61			T.	.40					.25		.02			.01	.04				.07				1.58
Flemington	do					.20				T.	1.14		.52	.06	.12				.35					.16	T.				.24				2.79
Haddonfield	Delaware		.06	.01		.31				.01	.11		.65	.03				T.	.19										T.	.30			1.81
Hammonton	Coast		.04			.03		T.		.92				T.				.46							.50				.05	.10			2.10
Highwood	do		T.			.06	.02		T.		.28		.15	.25					.15					T.	.04	.02			2.35	.04			3.36
Imlaystown	Delaware					.58							.20	.08					.10						.45				1.35		.04		2.80
Indian Mills	Coast		.32			T.	.10			T.	.53		.47					.18						.18				T.	.64			2.42
Jersey City	do		T.			.32			T.	*	.34		.22	.04				*	.12		T.			T.	.20				.81	T.			2.05
Lakewood	do		T.			.26				.06	.20		.27	.01					.04						.43				.81		T.		2.08
Layton	Delaware					.97				.07	.89		.35	.04	.15									.57	.31				.45				3.80
Little Falls	Passaic					.62				.08	.32		.55	.30				T.	.22					.15	.05				1.52				3.81
Long Branch	Coast					.13	.01		.11	T.	.09		.28	.18					.16	.45	.11				.43	.01				.95	T.	T.		2.91
Mahwah ‖	Passaic						.30				.50			.43					.18							.10								1.51
Moorestown	Delaware					1.12	.05				.17								.13						.67					.54			2.68
Newark	Passaic					.12					.50		.10	.07					.59					.02	.03	.06			.42		.03		1.94
Northfield	Coast		.44	.30		.03				T.	.06			.23					.71							.30							2.07
Paterson	Passaic		T.			.02	.12		.13		.38		.15	.57	.04				.21					.09	.03	.02			.51	.08			2.35
Phillipsburg	Delaware					.17				.04	2.30			.12	.23				.11		.02			.12	T.	.05			T.				3.16
Plainfield	Coast					.35			T.	.04	.48		.38	.12				T.	.18		T.				.06				.14	T.			1.75
Pleasantville	do		.36	.11						T.	.05								.88						.32					.16			1.88
Pompton Plains ‖	Passaic						.21			T.	.80			1.19	10				.16						T.	.04				T.			2.50
Somerville	Coast					.13					.68			.39	.11				.27	T.				T.	.12				1.67				3.37

TABLE 2.—*Daily precipitation for July, 1913. District No. 1*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New Jersey—Con.																																
South Orange	Coast					.18					.30		.40	.08					.50					T.	.05				T.				1.51
Sussex	Hudson					.58			.19	.39			.79	.16							.08			.32	.42				.34				3.27
Trenton	Delaware		T.			.23				.03			.25	.01				.01	.02			T.		T.	.41				.54				1.50
Tuckerton	Coast		.15	.20		.08					.48			.08				.45						1.07				.02	T.			2.53
Vineland	do		1.33			T.				.02			.22			T.			.19						.33					.15			2.24
Woodbine	do		.17	.34						.01				.38					1.70							16							2.76
West Virginia.																																
Bayard	Potomac		T.	.15	.51	.52	T.			.14	1.05	T.	.28	T.	1.32	.40	T.	.56	.09	.18	T.	T.			.87			.66		.31	.17		7.21
Burlington	do					.20					.70		T.		.45	.20		.22		.15			.20	.85			.30		T.				3.27
Franklin	do			.38			.30	.10			.86			.24	T.	T.			.21			T.			.10								2.19
Harpers Ferry ‖	do		.10			1.10				.18	1.38		.17		.30	.03		.32		.04				.16			.06	.15		.05	T.	4.04
Lost City	do		.05			.50	T.			.44	1.00		.10		.10	.05		.16					.05	.18				.08	T.	.10		2.81
Martinsburg	do																															
Moorefield	do																															
Romney ‖	do																															
Upper Tract	do					T.				T.	1.37		T.		.30	T.	T.	.80		T.					.30	*		.70		.03			3.50
Maryland.																																
Annapolis	Coast		.46			.14	.03		.15	.01		.14				T.			.56					.60	T.				.03		T.	T.	2.12
Baltimore	do		.11			.54				.37	.06		.30			T.		.18	.11					.15				.76	.05	T.		.30	2.63
Cambridge	do					.08				.09	.12		.10						.22		.46			.20									1.57
Cheltenham	do					.03				.12	.29			.18					.22						.36				.06	.28			1.54
Chestertown	do			.40		T.				.20	.04			.18					.65					T.									1.87
Chewsville	Potomac			.03			.18			.76			.20		.01	.03		.42			.07		.14	.22				T.	.19	.18			2.43
Clear Spring	do			.27			.34				.74			.49		.06	.09		1.11					.08	.36				T.		.23		3.83
Coleman	do		1.00			.13				.29			.25					29						.20									2.16
College Park	do						.10	T.			.30			.10			T.		.12			.02		.14				T.	.66			1.44
Cumberland	do					T.	.12	T.		.23	.59			T.	.22	.05	.08	T.	.40		T.	T.		T.	.03	.33			T.	.13	.24	T.	2.42
Darlington	Coast		.28	.02		1.35	.11			.38	.20		.26					T.	.55			.06			T.	.10			.63		.17		4.11
Denton	do						.04			.25									.24											.25			0.78
Easton	do		.37			.31				.15			.08						1.71			.07		.05									2.74
Emmitsburg	Potomac																															
Fallston	Coast		.80			.86	.15			.64	.30		.11		T.	T.		.05	.53		T.			T.	.62			.49	.18	T.			4.73
Frederick	Potomac		T.			.74	.03	T.		.37	.82		.21	T.	T.	.01		.14			T.			.02	.01			.01		.82	.82		4.00
Frostburg	do					.36		.14		.34	1.00		.14		.70	.20		.26	.45		.03			.22	.03		.26		1.34				5.47
Great Falls	do						.99				.42			.65					.27						.48						.20		3.01
Green Spring Furnace	do		*			.67				.38	.20		.56		.06	.10		1.14			.18			.23	.04					.10			3.66
Keedysville	do		T.			.28	.13			.37	.38		.12		T.	T.		1.60			T.		T.	.06					T.			2.94
Lake Montebello	Coast		T.			.36				.51			.85					25	.34					.10				.85	.13	.01			3.40
Laurel	do					1.18				.39	.18					.04	.13							.25	.05			.25		.38			2.85
Leonardtown	do			.02		.09	.18			.12	.23		T.		.03	T.			T.	T.	T.	.04			.01						T.		0.72
Monrovia	Potomac		T.			.35	.41			.35	.44		.23			T.		.09			T.			.18				T.		T.			2.05
Pocomoke City	Coast		.12				.13			T.	T.		.26		.10				.65	T.				T.	.65	T.							1.91
Princess Anne	do		T.			.15	.07				.06	.75	.28					.03	.27					.17	.05								1.83
Rockville	Potomac																															
Salisbury	Coast			T.		.09				.01	.04		.27						.73			.08		T.	.12	T.	T.		.15				1.49
Solomons	do		T.							.03	.10		.02		T.	T.		.08			.39			T.					T.	T.			0.62
State Sanatorium	Potomac		.22			.95				.55				T.		.03		.20	.16		.01		.19	.20				.70	.01				3.22
Sudlersville	Coast		.52			.03				.08			.28		T.	T.		T.	.56					.03	T.								1.50
Takoma Park	do						.20				.28			.12					.18						.27				T.		1.85		2.90
Towson	do		.02			.31	.11			.42	.21		.44						.45					.24				.98	T.	T.			3.18
Van Bibber	do		.15			1.35				.37	.19		.38					.03	.28					.10				.39					3.24
Westernport	Potomac					1.03			.20		.84				.82	.12		.40	.04					.22				.05		.12			3.84
Westminster	Coast																															
Woodstock	do			.03		.01	.06			.33	.32			.44				.02	.10					.11	.08			.40	.82	.47			3.19
Delaware.																																
Delaware City	Coast			.12		.09				.13	.19					T.		T.	T.					T.									0.53
Dover	do		.23			T.				.07			.41						.36					.63									1.70
Milford	do			.36			.33			.08				.60					.07		.02			.22									1.68
Millsboro	do		.80	.10		.14					.06		.29					.05	.10		.05			.14									1.67
Seaford	do			.35		.70				.06				.18		T.		T.	.40		.12			.10	.08				1.21				3.20
Wilmington	do		.10			.37				.18	.45		.95					.10						.55					1.85				4.55
District of Columbia.																																
Washington	Coast		T.			.19				.18	.06		.23		T.	T.		.20	.04		T.			.12	.01			T.	.01	2.02	.18		3.24
Virginia.																																
Culpeper	Rappahannock.					.95					.84		*		*	*		*	*	*	.33				.05									2.17
Dale Enterprise	Shenandoah	.25	.25			.18				.03	1.50		.04		.03	.02		.65		.28	.15			T.	.16	.01		.85	.20	.05	.11		4.76
Eastville	Coast						1.02				.20	.30	T.			.50			1.87		.28				T.	.74	.25	.02					5.18
Fredericksburg	Rappahannock.		.33				.43				1.06		T.		.01	.09			.08	T.	T.				T.	.03				T.			2.03
Lincoln	Potomac					.65				.28	.30		.12		.16				.12		.06			.44				.47					2.60
Mount Weather	do		.27			.81	.01			.21	.13		.15		.10	.10		.07			.07				.32				T.		T.			2.24
Quantico	Potomac					.52	.14		.17												T.				.27				T.					1.10
Staunton	Shenandoah		.04	.03		*	.34			*	2.84		.21			.51		.07		1.12			.01	.13			1.19	.03	.02	T.	.50		7.04
Swetnam	Potomac					.27				.30	.30		.33																				
Warsaw	Rappahannock.		.45			T.	.75					.23	.10			.03			1.32		.10		.27	.48	*	1.32	T.			T.	T.			2.15
Winchester	Potomac		1.02			.35				.10	.34		.05		T.	.50					1.05													4.30
Woodstock	Shenandoah		.23			1.09				.07	.96		.20		.09	.12		.09						.03			T.		1.00				4.41
																													.58				3.46

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures for July, 1913. District No. 1, North Atlantic States.*

Date.	Maine.												Concord, N. H.		Massachusetts.								Providence, R.I.		Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Presque Isle		Rumford Falls.				Amherst.		Boston.		Middleboro.		Nantucket.				Cream Hill.		Hartford.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	51	48	89	58	87	56	101	63	86	79	95	61	99	69	100	64	96	71	89	66	73	64	93	69	93	64	95	66
2....	83	50	82	65	89	65	89	69	79	64	81	64	84	65	84	70	91	72	91	67	87	65	91	73	86	64	89	69
3....	81	56	83	55	83	55	81	63	81	73	84	58	89	59	91	59	79	68	84	60	73	58	86	65	86	62	89	63
4....	87	58	90	56	90	55	88	60	91	74	93	56	96	53	95	62	93	66	85	53	77	59	89	65	90	66	90	64
5....	82	54	86	66	91	62	86	66	85	76	88	66	94	67	95	66	95	73	89	66	77	65	92	71	90	65	92	68
6....	58	52	72	64	81	63	82	64	78	63	85	66	90	65	92	64	92	71	86	69	76	66	93	69	88	66	91	66
7....	72	50	66	51	75	59	69	59	69	61	65	56	66	54	70	54	72	60	84	56	71	61	72	59	72	49	75	58
8....	70	54	69	50	76	53	74	57	76	60	73	54	78	52	82	46	82	61	78	47	75	60	82	57	79	50	82	53
9....	62	51	75	43	77	51	72	52	78	66	78	48	83	49	82	48	84	61	81	47	74	60	82	60	74	55	80	59
10....	58	51	70	57	77	58	72	59	71	63	74	59	78	61	79	63	80	64	80	63	74	63	81	63	72	59	80	64
11....	63	53	59	49	71	52	75	56	63	55	69	56	76	54	81	52	80	60	76	50	74	60	78	58	78	49	79	58
12....	75	53	76	51	78	48	73	55	77	55	78	51	85	45	86	41	84	60	80	46	76	61	80	57	82	60	82	53
13....	81	53	77	56	83	60	87	62	78	60	82	61	87	65	87	62	89	68	85	66	80	66	88	68	84	53	88	67
14....	71	52	64	54	82	56	75	60	69	63	66	62	72	60	76	60	79	66	78	65	76	62	77	63	74	56	78	63
15....	66	55	67	56	77	56	74	57	64	60	70	61	76	55	82	54	80	62	79	52	77	60	80	60	76	54	79	59
16....	70	54	75	51	75	54	72	59	75	60	76	57	79	57	84	52	70	60	75	52	70	58	76	61	78	57	81	57
17....	72	52	76	49	80	48	75	57	79	60	78	50	84	50	86	50	80	60	80	53	74	59	77	60	83	60	83	56
18....	61	52	62	56	80	61	74	57	71	64	79	58	69	62	78	62	70	61	69	63	67	61	69	64	79	56	74	63
19....	58	52	74	57	77	58	77	57	74	64	79	60	84	57	86	56	87	61	85	62	76	62	86	62	84	59	86	61
20....	67	50	74	56	80	55	78	58	75	63	78	56	84	55	87	57	87	66	85	54	84	63	88	63	76	56	86	63
21....	70	53	71	53	78	58	75	59	80	62	76	60	80	56	82	53	77	64	83	61	80	64	83	64	77	54	82	60
22....	77	51	78	44	82	49	80	58	81	45	80	51	86	50	88	52	86	63	81	50	78	64	81	61	84	53	86	58
23....	72	55	81	49	82	52	76	60	84	48	85	51	87	52	88	63	86	66	83	60	80	64	85	64	84	57	86	66
24....	64	53	68	58	80	64	77	63	76	61	75	64	74	65	78	67	83	68	81	66	78	64	81	68	76	56	80	69
25....	71	53	66	54	75	60	75	62	66	55	72	54	75	54	79	54	81	65	79	65	81	64	80	62	78	54	78	62
26....	77	53	76	48	80	48	78	56	78	44	80	47	84	45	85	44	83	60	78	.....	77	61	80	59	81	53	81	55
27....	74	54	82	53	86	53	79	57	84	54	86	52	91	51	90	54	87	63	81	.....	78	63	82	62	82	57	84	61
28....	73	54	70	56	85	57	69	59	80	64	73	60	83	61	80	62	84	64	80	53	81	67	82	63	77	56	82	64
29....	70	57	82	61	80	63	73	61	83	61	85	66	88	65	94	70	78	65	87	63	81	68	87	70	89	58	93	71
30....	83	54	80	57	86	61	86	60	78	56	87	62	88	64	90	68	84	72	88	65	84	68	90	73	91	62	93	68
31....	71	55	75	48	87	49	70	58	76	41	79	51	81	56	88	60	74	63	79	60	76	61	78	64	88	64	85	67
Mns..	71.0	53.0	74.7	54.2	81.0	56.1	77.8	59.5	76.9	60.5	79.0	57.4	82.9	57.2	85.5	57.7	83.0	64.6	76.8	54.4[b]	76.9	62.6	82.9	63.8	81.6	57.5	84.2	62.8

Date.	New Haven, Conn.		New York.												Pennsylvania.												Atlantic City, N.J.	
			Addison.		Albany.		Binghamton.		Indian Lake.		Little Falls.		New York.		Everett.		Harrisburg.		Philadelphia.		Scranton.		State College.		Wellsboro.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	90	68	98	65	99	72	97	66	100	71	93	70	91	68	95	65	98	70	91	69	96	70	93	69	.....	.....	77	70
2....	92	72	87	67	82	71	78	62	85	61	80	57	93	74	85	65	92	72	97	77	85	65	86	68	.....	.....	90	68
3....	86	67	90	59	89	65	90	57	87	46	90	55	86	68	87	57	89	66	88	73	90	60	88	59	.....	.....	76	69
4....	86	65	95	64	94	68	91	60	92	43	95	60	84	68	89	63	90	70	89	67	91	65	88	68	.....	.....	77	67
5....	90	68	92	65	91	74	88	68	89	62	90	69	89	69	85	71	91	72	92	72	89	70	84	66	.....	.....	78	71
6....	92	68	81	65	86	60	79	54	82	64	79	62	88	70	81	53	86	68	89	72	84	60	78	65	.....	.....	90	72
7....	76	59	75	53	74	57	71	52	66	49	70	54	76	57	71	60	76	58	79	61	73	56	72	51	.....	.....	77	62
8....	80	56	80	48	79	53	75	49	71	35	79	51	79	62	80	45	82	61	83	66	78	56	78	55	.....	.....	82	59
9....	78	58	80	51	78	60	75	55	75	36	78	54	77	66	75	53	72	63	78	66	73	56	74	58	.....	.....	74	66
10....	82	64	74	46	75	61	71	56	71	54	71	58	82	66	76	61	79	64	84	69	75	62	74	60	.....	.....	86	67
11....	80	58	81	45	78	56	75	46	72	43	72	48	79	61	78	51	82	60	84	65	76	57	78	50	.....	.....	72	63
12....	78	54	88	55	82	49	79	46	75	33	80	45	78	64	81	57	85	64	87	67	82	52	80	58	.....	.....	75	65
13....	88	67	89	56	90	64	85	62	79	65	85	63	86	67	87	64	89	67	89	69	84	64	85	65	.....	.....	89	70
14....	80	64	90	52	76	60	73	55	73	50	72	60	79	68	82	68	79	70	82	72	76	62	80	62	.....	.....	85	68
15....	80	59	81	47	80	59	74	50	70	46	78	53	80	63	79	59	82	61	84	68	76	53	80	53	.....	.....	74	64
16....	81	60	84	47	82	57	78	50	80	41	82	51	81	63	79	52	82	63	85	64	80	56	79	51	.....	.....	74	62
17....	81	59	78	55	83	58	77	56	80	40	82	56	82	63	78	55	76	64	83	66	82	58	72	59	.....	.....	81	65
18....	79	64	86	62	83	64	84	64	84	47	85	61	82	63	81	66	88	65	89	65	86	64	86	62	.....	.....	86	66
19....	88	64	85	54	86	61	82	62	81	45	83	57	87	71	79	58	85	70	90	74	83	65	80	61	.....	.....	90	69
20....	87	62	77	51	85	59	76	54	75	43	78	58	86	68	81	53	85	64	87	71	79	56	80	58	.....	.....	81	68
21....	83	63	81	51	80	59	77	51	76	45	79	56	82	64	82	52	81	62	84	67	78	56	77	54	.....	.....	84	65
22....	84	62	88	43	85	56	86	46	80	40	85	49	84	67	82	50	85	61	87	69	84	53	82	52	.....	.....	80	63
23....	83	68	88	52	87	65	81	66	82	41	90	60	82	68	82	59	80	64	87	69	82	62	81	63	.....	.....	78	70
24....	81	67	74	62	72	66	71	62	80	57	77	65	82	68	76	62	83	67	90	66	72	64	68	61	.....	.....	78	69
25....	80	62	77	50	77	61	81	55	75	50	75	55	78	65	76	56	78	62	81	68	73	60	75	54	.....	.....	82	68
26....	80	57	85	47	82	54	86	50	80	36	85	49	78	65	81	50	83	57	83	66	80	52	80	53	.....	.....	80	64
27....	80	60	93	53	88	62	88	54	85	41	89	60	81	66	86	55	89	62	88	67	85	56	85	58	.....	.....	79	68
28....	81	64	95	67	81	69	92	71	83	63	87	67	81	68	90	64	95	71	90	71	86	68	89	68	.....	.....	79	72
29....	83	71	96	64	91	71	90	67	86	58	90	64	88	71	90	71	96	74	96	71	93	67	90	69	.....	.....	80	73
30....	95	71	93	61	89	67	87	64	85	50	88	60	95	74	89	65	94	75	95	75	91	68	91	70	.....	.....	87	75
31....	85	69	93	59	88	64	87	62	90	44	91	61	85	70	87	65	91	73	88	72	91	69	88	65	.....	.....	80	75
Mns..	83.5	63.5	85.6	55.4	83.6	62.0	81.4	57.2	80.3	48.4	82.5	57.7	83.3	66.6	82.3	58.9	85.3	65.8	87.1	68.8	82.4	60.7	81.3	60.2	.....	.....	80.7	67.5

TABLE 3.—*Maximum and minimum temperatures for July, 1913. District No. 1, North Atlantic States*—Continued.

Date.	New Jersey.								Martinsburg, W. Va.§§		Maryland.								Millsboro, Del.		Washington, D. C.		Virginia.					
	Bridgeton.		Phillipsburg.		Sussex.		Trenton.				Baltimore.		Darlington.		Frederick.		Westernport.						Fredericksburg.		Staunton.§§		Woodstock.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	93	68	98	64	97	.....	91	67	100	69	94	70	88	66	100	67	98	68	92	67	94	72	93	68	95	72	96	69
2....	98	75	94	74	90	73	96	74	96	72	98	78	94	66	99	73	93	67	96	73	96	77	94	72	94	71	93	71
3....	90	66	95	62	91	57	91	69	98	65	88	73	87	66	94	66	89	62	82	70	90	72	87	71	85	69	88	69
4....	89	63	95	64	92	64	89	64	95	68	88	70	86	61	96	68	93	66	85	65	91	67	93	68	86	69	90	70
5....	95	70	94	66	89	66	90	69	102	70	93	72	91	67	100	72	90	64	92	69	92	71	93	70	91	68	92	69
6....	92	70	90	69	88	72	87	71	81	69	90	71	87	67	90	70	86	56	89	73	88	71	90	69	88	68	86	69
7....	83	59	79	55	79	53	77	58	78	57	79	61	82	60	81	56	81	56	79	63	77	59	82	61	79	58	78	58
8....	87	55	85	53	81	50	82	60	84	53	84	64	82	53	85	52	84	48	81	57	83	59	81	54	82	53	82	52
9....	84	62	74	55	75	55	77	62	77	55	76	66	72	61	77	59	82	54	82	62	80	64	81	59	84	59	80	58
10....	90	68	82	64	78	64	82	66	83	54	85	70	80	65	85	66	83	65	86	71	83	66	83	67	86	63	84	66
11....	87	60	83	55	80	52	82	62	85	60	84	67	83	57	86	60	85	55	81	64	86	64	82	64	83	62	85	58
12....	93	62	89	53	82	48	87	61	88	62	89	70	86	63	91	65	85	61	90	64	90	69	87	69	82	69	86	69
13....	93	68	90	63	86	64	88	66	90	65	91	69	87	63	92	64	90	60	89	70	92	69	88	68	86	65	89	61
14....	90	73	81	64	78	64	79	66	88	67	87	77	83	77	88	71	88	64	92	76	91	73	89	74	86	68	85	61
15....	85	62	83	54	79	.....	83	62	82	69	83	71	82	61	83	67	89	65	77	67	79	66	80	67	82	67	80	64
16....	84	57	86	58	83	50	84	61	85	59	83	67	84	59	85	58	87	55	81	61	83	64	82	64	83	60	83	57
17....	87	62	84	58	83	55	82	63	75	60	77	69	79	60	80	59	78	60	83	62	79	61	79	59	83	64	80	61
18....	89	64	88	62	85	61	87	63	88	63	89	70	88	59	89	68	88	68	85	67	88	70	89	69	91	70	88	67
19....	92	65	88	65	85	65	87	68	89	66	89	72	87	60	91	65	87	62	88	68	89	71	83	77	85	68	87	68
20....	89	65	88	58	85	55	87	63	87	65	88	70	87	62	91	63	88	55	84	68	90	66	89	67	84	61	87	65
21....	88	64	83	58	80	55	82	64	83	64	85	67	83	59	86	59	81	55	83	66	84	65	84	61	83	57	82	58
22....	91	59	88	56	86	51	88	64	88	56	86	66	85	57	91	55	87	57	85	58	89	60	86	59	85	57	85	56
23....	92	64	89	63	85	58	86	65	89	59	89	71	85	64	92	67	87	61	85	60	89	72	87	68	85	62	86	64
24....	96	68	84	64	79	65	87	65	89	64	94	71	90	67	94	66	81	59	93	67	94	68	92	66	85	65	89	65
25....	84	65	81	61	77	58	79	65	81	61	82	68	80	62	84	64	80	55	81	64	81	61	82	67	80	64	80	61
26....	87	56	85	53	80	48	85	61	86	54	83	62	81	52	88	53	82	50	82	54	84	58	82	54	80	54	83	52
27....	92	65	89	57	85	55	88	62	92	59	86	66	87	57	94	58	85	58	84	68	90	65	88	62	89	62	91	61
28....	95	67	94	67	83	63	89	68	97	67	94	71	88	60	100	51	96	67	92	68	92	73	92	70	89	66	95	68
29....	97	69	97	67	94	64	96	69	96	69	94	74	93	67	100	70	94	66	95	73	97	73	96	71	92	67	94	68
30....	98	72	97	70	93	67	97	73	95	69	95	76	91	67	102	74	94	65	93	74	97	66	94	77	90	77	95	69
31....	95	70	93	68	94	65	85	71	93	68	90	75	91	68	93	68	89	67	90	71	93	71	94	68	91	66	91	72
Mns..	90.5	64.9	87.9	61.3	84.6	59.2[b]	86.1	65.2	88.4	63.2	87.5	69.8	85.5	62.1	90.5	64.3	87.1	60.4	86.4	66.5	88.1	67.2	87.2	66.5	85.9	64.1	86.8	63.7

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

GENERAL SUMMARY.

July was warmer than usual in all the States in the district. Periods of intense heat prevailed that were most marked in western North Carolina, South Carolina, Georgia, and Alabama, during which all previous records for high temperatures were broken at many places. This was particularly the case throughout Georgia, where previous maximum temperatures were exceeded at 20 places and equaled at 6 others. The record of 110° at Talbotton, Talbot Co., Ga., is believed to be the highest ever registered under standard exposure of the thermometers in the southeastern portion of the United States. The highest temperatures were generally recorded about the 19th. The monthly mean temperatures were above 80° for every State except Virginia and North Carolina.

The precipitation was entirely in the form of local thundershowers, which, however, were very frequent in all portions of the district; hardly more than one or, at most, two generally fair days occurred, mostly about the 8th or 9th, the coolest days of the month. During the first two decades the rainfall was insufficient and drought prevailed in some districts, but during the last decade the precipitation was more abundant and a general improvement in the condition of crops took place. Several severe thunderstorms with hail occurred in various portions of the district, resulting in considerable damage to crops and the death of about 12 people by lightning. The number of deaths by lightning in the district during June and July has been almost unprecedented.

The highest atmospheric pressure in the district was 30.25 inches on the 15th at Pensacola, Jacksonville, Anniston, and Birmingham, and the lowest was 29.77 inches on the 6th at Norfolk, and on the 19th at Columbia, giving a range for the month of only 0.48 inch.

TEMPERATURE.

The month opened with high temperatures in all sections, especially from the 2d to 6th, during which period the highest for the month occurred at several places in the extreme northern and western portions of the district. Moderately cooler weather followed from the 7th to about the 14th, the 8th being generally the coolest day with minimum temperatures below 60° in the Gulf States except Florida and below 50° at a few places in Virginia and North Carolina. A very marked hot wave occurred during the latter portion of the second decade, culminating in record-breaking temperatures on the 19th. The following extracts from the reports by section directors are pertinent:

North Carolina.—The highest temperature was 106° at Monroe, which, excluding one doubtful record, is the highest every registered in the State. New high records were established at several stations. The temperature reached 101° at Charlotte on the 18th and 102° on the 19th, equaling the previous high record in July, 1887.

South Carolina.—The highest temperature was 109° at Greenwood and Santuck, which is 2° above the previous highest record for the State, while the temperatures at many other places equaled or exceeded previous high records.

Georgia.—Although July, 1913, was extremely warm it did not quite equal July, 1902. The monthly mean for the State, 81.3° was slightly exceeded in July, 1902, with 82° and in August, 1900, with 82.3°. During the present month 19 stations reported 105° or above as compared with 18 in 1902, and 50 reported 100° or above as compared with 57 in 1902. But the extreme of 110° at Talbotton on July 19, this year, stands unrivalled in the climatic history of Georgia. All previous records were broken at several stations having long records, as at Rome (54 years), Macon (32 years), Athens (31 years), etc.

On the 20th a period of moderate temperatures of about one week's duration began but was followed by high temperatures, especially in the northern part of the district toward the close of the month.

The mean temperature for the district as a whole was 80.7°, or 1.1° above the normal. At the great majority of stations the excess was less than 3°, while at a few places, mostly in southern Florida and on the Gulf coast, there were slight deficiencies. The range in monthly means was usually small in some States. For example, in Mississippi, from 80° at Pearlington to 83.4° at Agricultural College; in Alabama, from 79° to 84°; in Georgia, from 75° to 84°, etc. The highest monthly mean was 84.7° at Clermont, Fla., closely followed by 84.6° at Allendale, S. C., and 84.5° at Waynesboro, Ga. The lowest monthly mean was 70.7° at Rock House, N. C. Highest temperature 110°, lowest 46° (Hot Springs, Va.).

PRECIPITATION.

Although local showers were unusually frequent in all sections, amounts were generally not large until the last decade, when copious precipitation occurred commencing with the breaking up of the hot wave on the 19th. The intense heat on that day led to the formation of marked convectional disturbances with hail at many places, chiefly in the northern part of the district.

The State averages were nearly an inch below the normal in the Carolinas and about 2 inches below in Florida, nearly normal in Georgia and Alabama, and slightly above normal in Virginia and Mississippi. In each State over comparatively limited portions, mostly near the Atlantic coast or the Gulf of Mexico, the precipitation exceeded 8 inches, and at 10 stations out of 375 reporting, the total for the month was over 10 inches. In amount the rainfall was very irregularly distributed and drought prevailed during the earlier portion of the month at many stations, especially in Florida, with some injury to crops. The heaviest local rains fell on the 10th–11th in the northern part of the district, but over the remainder, on various dates, from the 19th to the 27th, with 24-hourly

amounts exceeding 2.50 inches at a few stations in each State. The largest amount was 4.63 inches on the 21st at Abbeville, Ga.

The least rainfall occurred on the eastern coast of Florida, but less than 1 inch was received at only one place, Malabar, with 0.26 inch.

The average rainfall for the entire district was 5 36 inches and the departure −0.41 inch. The largest amount was 14.80 inches at Robertsdale, Ala., and the least 0.26 at Malabar, Fla. Hail fell at many places with much damage to crops.

MISCELLANEOUS PHENOMENA.

The prevailing winds were from the southwest in the States from Alabama to Virginia, but from the southeast in Florida and south in Mississippi. The hourly wind movement slightly exceeded 10 miles at some of the coast stations. The maximum wind velocity reported was 60 miles an hour from the north at Norfolk, Va., on the 2d; gales of 40 miles an hour or more occurred at Cape Henry, Va., at Hatteras, Raleigh, and Charlotte, N. C., at Savannah and Atlanta, Ga , and Jacksonville and Pensacola, Fla.

The average number of clear days was 14, partly cloudy 11, cloudy 6, and rainy 11. The average number of hours of sunshine for the district was 285, or 65 per cent of the possible amount. Highest percentage 79 at Anniston, Ala , lowest 40 at Hatteras, N. C.

SEVERE LOCAL STORMS.

Atlanta, Ga.—A severe local thunderstorm occurred at Atlanta on July 31, between the hours of 3 and 5 p. m., which presented some rather unusual phenomena. The storm formed southeast of the city and undoubtedly moved eastward, but the entire sky at Atlanta became overcast by thin clouds which permitted sufficient light to pass so that it was comparatively bright during the entire storm. The most striking feature was the absence of the usual outrushing wind; during the disturbance the wind velocity did not exceed 8 miles an hour, and while the rain was heaviest the smoke from chimneys ascended almost vertically upward. From 3.25 to 3 55 p. m. 0.80 inch of rain fell. The electrical display was also brilliant and continuous, and the thunder remarkably loud. The cupola on the Terminal Railway Station was shattered by lightning, and one person was killed.

The writer, although for nearly 30 years an observer in the Weather Bureau, has never before seen anything so nearly approaching ball lightning as was observed during this storm. Very many flashes passed between the clouds and the earth. At the earth terminal of three exceptionally brilliant flashes which occurred in rapid succession and were of the usual reddish color, brilliant globes about the size of a man's head of intensely blue light were observed which lasted for from 3 to 5 seconds after the main flashes had disappeared.

A severe local storm occurred on July 7 at Waycross, Ga., during which large windows were shattered, several houses taken off their foundations, and trees blown down in all parts of the city. A similar storm occurred on the same day at Jackson, Miss., which caused much damage to fruit trees, and at Biloxi, Miss , on the 10th and at Birmingham, Ala , on the 29th.

Norfolk, Va —A severe thunderstorm occurred on July 10, attended by strong gusts of wind over Hampton Roads. Lightning caused damage to buildings and boats along the shore and put the telephones and electric railways out of commission in Fortress Monroe, Newport News, and vicinity.

Raleigh, N. C.—Hail destroyed or damaged crops over small areas in Nash County, N. C., on the 19th, and in Wake and Johnston Counties on the 20th. On a few farms crops were almost completely destroyed, particularly in the vicinity of Fuquay Springs and Smithfield. Some of the hailstones were an inch in diameter. It is estimated that the damage to crops and property in these counties was $60,000.

RIVER CONDITIONS.

Mean river stages were generally normal or slightly below throughout the district during July, and flood stages were not attained at any point.

LOCAL STORMS OF JULY 19, 1913, IN VIRGINIA.

[By JAMES H. KIMBALL, Observer.]

Saturday, July 19, opened clear and unusually warm, with light northerly winds sweeping over middle Virginia toward a shallow atmospheric depression, which at 8 a. m. occupied the Piedmont section of North and South Carolina. At Richmond during the morning hours cumulus and strato-cumulus clouds began to appear in the northwest and by noon the sky was partly cloudy and covered with a thin layer of haze. Light northwesterly winds prevailed until about 3 p. m. when, with gathering clouds and an almost imperceptible increase in wind movement, the temperature began to fall, and a few minutes later thunder was heard in the west. About 4 p. m. a northwest squall set in with light rain and a marked fall in temperature. Shortly after 8 p. m. a remarkably beautiful display of mammato-cumulus clouds was observed drifting slowly from the west.

These notes are abstracted from the Richmond record because of their apparent connection with a number of violent storms that occurred on the same day in the adjoining section of middle Virginia.

Hail was the principal agent of destruction, but great loss was also caused by lightning and high winds. Buckingham, Cumberland, Prince Edward, Nottoway, and probably Lunenburg Counties sustained most of the loss, and since these counties form the heart of the Virginia tobacco-growing district their misfortune is of more than local interest. Hail fell in enormous quantities, and large areas of tobacco which had just been topped were almost ruined. The violent electrical discharges caused the destruction by fire of many barns containing recently harvested wheat and oats, while high winds from the northwest unroofed houses and demolished many less substantial buildings.

Of the several storms that occurred between 2 and 4 p. m. on the 19th, the one that developed in central Buckingham County was undoubtedly the most severe. It began to show destructive properties when nearing Enonville, a village in the south-central part of the county, where a heavy thunderstorm occurred at about 2.30 p. m. Thence it traveled in a southeasterly direction and was next reported from Arcanum, about 4 miles distant, where the lightning was severe. Four large trees standing within a comparatively small area are said to have been shattered from top to bottom by successive discharges within a 5-minute interval. Rain and hail occurred, but these features did not become excessive until the storm reached Sheppard, a village 5 miles to the south-southeast.

From a full and interesting account forwarded from Sheppard by Mr. P. M. Jones the following brief summary has been taken: Shortly before 3 p. m. the storm appeared suddenly in the north-northwest, moving in an easterly direction, apparently toward Curdsville, but when northeast of that place it curved to the south and was overtaken by a second storm from the northwest. From the point of meeting the reenforced disturbance moved southeast with greatly increased intensity, prostrating nearly everything in its path. The destruction was apparently caused by a straight wind. Three miles northeast of Sheppard the north sides of forest trees were stripped of their bark and from that side appeared white and bare. The lightning was not intense, but the rain and hail increased greatly in intensity, and the loss to property in the vicinity is estimated at $100,000.

In crossing Cumberland County the storm seems to have disintegrated, since at Farmville, on the southern edge of the county, three distinct storms were observed, and though the wind, rain, and hail continued, the losses in Cumberland County were moderate.

Only one death is known to have resulted from the storm, that of a colored woman, killed by lightning, near Overly. South of Overly, in the neighborhood of Rice Depot, the wind and hail again became violent, and large areas of tobacco were destroyed. Still farther south at Meherrin, on the southern edge of Prince Edward County, the hail was still the principal feature of the storm and this section also suffered greatly.

An accurate estimate of the loss sustained by the tobacco growers can not be made, since many of the leaves were picked up for curing and something may be saved from the suckers from thousands of plants that were cut off near the ground, but in the opinion of a grower well qualified to know the loss in the section within 30 miles of Farmville may well exceed $1,000,000.

TABLE 1.—*Climatological data for July, 1913. District No. 2, South Atlantic and East Gulf States.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Virginia.																				
Arvonia	Buckingham	350	9	76.6	− 0.8	94	2†	56	8	29	2.96	− 0.81	0.72	0	9	12	18	1	sw.	Rev. Plummer F. Jones.
Ashland	Hanover	221	22	77.1	− 0.9	95	2	57	8	28	3.17	− 1.85	0.77	0	8	9	21	1	s.	E. L. C. Scott.
Buchanan	Botetourt	820	9	.....	.....	.....	.....	.....	.....	.....	3.29	− 1.55	1.45	0	9	.....	.....	.....	.....	D. D. Booze.
Callaville	Brunswick	250	19	78.8	+ 1.7	99	2	55	8	31	6.06	+ 0.05	2.30	0	9	21	9	1	e.	F. M. Gage.
Cape Henry	Princess Anne	20	39	78.2	+ 0.7	98	2	62	8	23	9.51	+ 3.66	2.14	0	14	12	14	5	sw.	U. S. Weather Bureau.
Catawba	Roanoke	1,760	2	73.8	.....	92	19	47	30	44	3.81	.....	1.46	0	10	21	10	0	w.	State Board of Health Sanitarium.
Charlottesville	Albemarle	800	24	75.0	+ 1.1	94	2	49	7†	36	4.73	− 0.75	1.65	0	12	7	7	17	w.	Leander McCormick Observatory.
Clarkesville	Mecklenburg	286	19	.....	.....	.....	.....	.....	.....	.....	1.99	− 2.46	0.67	0	6	.....	.....	.....	.....	J. A. Ligon.
Columbia	Fluvanna	246	15	.....	.....	.....	.....	58	8†	.....	5.85	+ 1.76	1.98	0	8	19	4	8	se.	Chesapeake & Ohio Ry. Co.
Danville	Pittsylvania	413	13	.....	.....	.....	.....	.....	.....	.....	6.18	+ 2.26	2.32	0	7	.....	.....	.....	.....	C. G. Watkins.
Diamond Springs	Princess Anne	25	3	78.6	.....	99	2	57	8	26	9.30	.....	1.66	0	12	22	8	1	.....	Virginia Truck Exp. Sta.
Dry Bridge	Chesterfield	325	2	.....	.....	.....	.....	.....	.....	.....	3.95	.....	1.08	0	13	.....	.....	.....	.....	Dr. E. W. Magruder.
Hampton	Elizabeth City	5	30	79.6	+ 1.1	97	2	63	8	23	7.45	+ 0.30	1.60	0	10	25	6	0	e.	Normal and Agriculture Inst.
Hot Springs	Bath	2,195	21	71.6	+ 2.2	91	1	46	8	32	6.66	+ 2.81	1.75	0	12	19	12	0	.....	A. M. Tait.
Ivor	Southampton	87	4	79.0	.....	102	2	54	8	34	9.57	.....	2.10	0	11	.....	.....	.....	.....	Norfolk & Western Ry. Exp. Farm.
Lassiter	Goochland	100	3	.....	.....	.....	.....	.....	.....	.....	4.04	.....	1.02	0	7	21	9	1	.....	T. J. Davis.
Lexington	Rockbridge	1,060	36	74.4	− 0.1	95	1	50	8	34	3.12	− 0.86	0.96	0	11	21	8	2	.....	Virginia Military Institute.
Lynchburg	Campbell	685	42	78.6	+ 1.3	99	30	57	8	26	1.53	− 2.50	0.68	0	6	11	20	0	sw.	U. S. Weather Bureau.
Newport News	Warwick	55	10	79.2	.....	100	2	63	8	28	10.84	.....	3.44	0	15	15	13	3	sw.	C. W. Ashby.
Norfolk	Norfolk	91	43	78.2	− 0.2	97	2	61	8	26	10.24	+ 4.44	2.55	0	12	13	11	7	sw.	U. S. Weather Bureau.
Petersburg	Dinwiddie	60	26	80.1	+ 2.5	98	2	61	12	31	2.48	− 2.41	1.36	0	6	.....	.....	.....	.....	Walter Edward Harris.
Randolph	Charlotte	334	9	.....	.....	.....	.....	.....	.....	.....	4.65	.....	1.43	0	6	.....	.....	.....	.....	W. J. Abbitt.
Richmond	Henrico	144	34	79.0	− 0.2	97	30	60	8	26	3.65	− 0.77	1.42	0	12	12	14	5	s.	U. S. Weather Bureau.
Roanoke	Roanoke	907	3	77.0	.....	95	2†	51	8	32	2.92	.....	1.66	0	9	16	14	1	sw.	Capt. Reese F. Bell.
Rocky Mount	Franklin	1,150	19	78.3	+ 2.5	99	29	51	8	34	4.48	− 0.64	1.95	0	5	.....	.....	.....	.....	G. W. B. Hale.
Ruckersville	Greene	625	2	75.6	.....	97	29	50	9	32	5.04	.....	1.65	0	11	.....	.....	.....	.....	Dr. Jesse Ewell.
Runnymede (near)	Surry	15	25	78.7	+ 1.1	99	2	56	8	28	6.68	+ 4.40	2.30	0	11	11	8	12	sw.	B. W. Jones.
West Point	King William	15	1	79.4	.....	99	2	59	8	27	3.82	.....	1.24	0	9	22	4	5	s.	C. L. Maskey.
Williamsburg	James City	70	22	78.5	+ 1.7	97	2	58	8	28	3.26	− 1.89	0.98	0	7	22	8	1	sw.	Eastern State Hospital.
North Carolina.																				
Albemarle	Stanly	700	1	80.2	.....	103	19	55	8	33	3.61	.....	1.20	0	15	17	12	2	sw.	M. J. Harris.
Altapass (near)	McDowell	2,133									3.63		0.89	0	9					R. F. Brewer.
Beaufort	Carteret	10	12	80.4	+ 0.6	93	27	66	8	20	5.34	+ 0.05	1.85	0	11	20	6	5	sw.	Lewis Radcliffe.
Belhaven	Beaufort	4	4	82.2	.....	99	2†	61	9	30	6.32	.....	2.50	0	8	23	7	1	s.	A. L. Bell.
Brewers	Wilkes	1,950	16	76.9	+ 1.3	100	18†	49	8	38	1.87	− 3.73	0.50	0	13	6	24	1	w.	W. L. Brewer.
Caroleen	Rutherford	806	13	80.2[c]	+ 1.9	104	19	56	8	40	3.56	− 1.13	1.42	0	8	17	13	1	sw.	S. B. Tanner.
Chalybeate Springs	Harnett	500	7	80.4	.....	101	19	55	8	35	6.90	.....	2.02	0	13	23	6	2	s.	J. A. Smith.
Chapel Hill	Orange	500	55	79.6	+ 0.9	101	19	54	8	34	2.05	− 2.83	1.04	0	8	16	13	2	w.	Prof. A. H. Patterson.
Charlotte	Mecklenburg	773	37	80.4	+ 1.7	102	19	61	8	30	4.42	− 1.07	2.36	0	11	6	15	10	sw.	U. S. Weather Bureau.
Chimney Rock	Rutherford	1,150	3	76.7	.....	100	19	54	8	32	4.99	.....	2.32	0	8	20	10	1	w.	J. M. Flack.
Durham (near)	Durham	406	4	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.20	0	7	.....	.....	.....	.....	J. C. Michie.
Eagletown	Northampton	66	8	79.0	.....	98	2	56	8	28	8.55	.....	2.35	0	12	14	15	2	sw.	J. T. Elliott.
Edenton	Chowan	30	19	81.2	+ 1.6	99	14†	52	8	35	4.73	− 2.39	1.91	0	8	20	8	3	s.	E. R. Conger.
Elizabeth City	Pasquotank	8	1	.....	.....	.....	.....	57	8	.....	6.25	.....	1.35	0	8	22	8	1	sw.	W. J. Simmons.
Elizabethtown	Bladen	60	2	.....	.....	.....	.....	.....	.....	.....	7.01	.....	2.30	0	7	.....	.....	.....	.....	H. H. Barnhill.
Elkin	Surry	874		.....	.....	.....	.....	.....	.....	.....	1.76	.....	0.70	0	6	.....	.....	.....	.....	Cynthia L. Myers.
Enfield (near)	Halifax	99	2	.....	.....	.....	.....	.....	.....	.....	4.98	.....	2.00	0	9	.....	.....	.....	.....	T. S. Inborden.
Fayetteville	Cumberland	170	26	81.6	+ 2.5	101	19	61	9	30	4.92	− 2.26	1.64	0	8	20	3	8	sw.	Frank Glover.
Globe (near)	Caldwell	1,800	1	.....	.....	.....	.....	.....	.....	.....	3.17	.....	0.79	0	9	.....	.....	.....	.....	Julius L. Gragg.
Goldsboro	Wayne	102	43	79.8	0.0	97	6	59	8	31	8.99	+ 2.48	3.94	0	12	18	12	1	s.	Mrs. J. J. Robinson.
Gorge (near)	Caldwell	1,358	1	.....	.....	.....	.....	.....	.....	.....	2.32	.....	0.74	0	11	.....	.....	.....	.....	A. J. Bagley.
Graham	Alamance	656	11	.....	.....	.....	.....	.....	.....	.....	2.40	− 2.11	0.54	0	10	.....	.....	.....	.....	Dr. W. R. Goley.
Greensboro	Guilford	843	32	78.1	0.0	99	19	59	8	25	3.09	− 2.02	1.60	0	9	.....	.....	.....	sw.	A. H. Horry.
Greenville	Pitt	75	20	.....	.....	.....	.....	.....	.....	.....	3.53	− 3.29	1.20	0	11	.....	.....	.....	.....	R. M. Hearne.
Hatteras	Dare	11	39	78.8	+ 0.2	89	5	65	8	15	3.78	− 2.35	2.62	0	9	5	21	5	sw.	U. S. Weather Bureau.
Henderson	Vance	508	20	79.8	+ 1.7	100	2	58	8	29	2.92	− 2.87	0.86	0	8	16	14	1	sw.	Enoch Powell.
Hickory	Catawba	1,156	.....	.....	.....	.....	.....	56	8	.....	1.91	.....	0.64	0	6	.....	.....	.....	nw.	Frank B. Gwin.
Kings Mountain	Cleveland	952	1	81.2	.....	103	19	60	8	29	2.10	.....	0.60	0	10	21	8	2	sw.	G. T. King.
Kinston	Lenoir	46	15	80.6	− 0.2	98	2†	57	8	28	8.94	+ 2.25	2.25	0	10	18	10	3	s.	H. C. V. Peebles.
Lincolnton	Lincoln	994	7	79.0	.....	101	19	54	8	39	2.07	.....	0.55	0	7	12	17	2	sw.	S. P. Houser.
Louisburg	Franklin	375	22	81.0	+ 2.9	100	19	57	8	30	5.09	− 0.28	1.99	0	10	16	14	1	sw.	T. B. Wilder.
Lumberton	Robeson	102	30	81.8	+ 1.5	101	19	59	9	32	5.63	− 0.31	1.76	0	11	.....	.....	.....	s.	B. M. Davis.
Manteo	Dare	12	8	79.7	.....	97	6	53	8	28	3.22	.....	1.10	0	9	19	11	1	sw.	U. S. Weather Bureau.
Marion	McDowell	1,425	21	77.0	+ 1.4	101	19	53	8	30	4.67	− 0.73	1.68	0	14	10	19	2	w.	Sergt. Thomas McGuire.
Middletown	Hyde	4	2	79.4[b]	.....	97	6	54	8	38	3.69	.....	1.07	0	6	.....	.....	.....	s.	W. P. Burrus.
Moncure	Chatham	145	19	79.9	+ 1.1	100	18†	54	8	35	4.10	− 0.84	2.78	0	8	17	7	7	se.	B. J. Utley.
Monroe	Union	586	19	80.8	+ 2.0	106	19	53	8	37	5.22	− 0.01	2.32	0	9	17	5	9	sw.	T. A. Ashcraft.
Morganton	Burke	1,135	26	79.1	+ 3.1	104	19	53	8	33	1.45	− 3.69	0.45	0	9	24	3	4	sw.	J. B. P. Massey.
Mount Airy	Surry	1,048	25	76.8	+ 1.6	96	18†	50	8	30	6.33	+ 0.55	1.55	0	9	19	7	5	s.	Prof. A. H. Merritt.
Mount Holly	Gaston	616	16	.....	.....	.....	.....	.....	.....	.....	3.20	− 3.16	1.10	0	10	.....	.....	.....	.....	J. W. Holland.
Nashville	Nash	190	9	80.6	.....	98	2†	64	8	26	9.26	.....	2.95	0	9	12	15	4	sw.	J. B. Boddie.
Neuse	Wake	266	1	.....	.....	.....	.....	.....	.....	.....	5.30	.....	2.92	0	10	.....	.....	.....	.....	E. M. Allen.
Newbern	Craven	12	31	80.8	+ 1.8	96	6	59	8	28	10.60	+ 2.96	3.25	0	13	7	17	7	sw.	J. B. Hill.
N. Wilkesboro (near)	Wilkes	1,700	1	.....	.....	.....	.....	.....	.....	.....	2.63	.....	1.07	0	6	.....	.....	.....	.....	Dr. Charles A. Willis.
Parkersburg	Sampson	121	1	80.8	.....	101	6	56	9	34	5.20	.....	1.80	0	9	17	12	2	w.	E. J. Conway.
Pinehurst	Moore	650	9	81.4[a]	.....	100	19	54	7	35	6.88	.....	2.15	0	10	19	12	0	sw.	General office.
Pittsboro	Chatham	480	20	79.6	+ 2.2	102	19	55	8	35	4.35	− 1.17	1.30	0	7	.....	.....	.....	s.	Mrs. J. F. Alston.
Raleigh	Wake	390	42	80.0	+ 1.5	99	18	64	8	30	5.51	− 0.60	1.49	0	12	8	18	5	sw.	U. S. Weather Bureau.
Ramseur	Randolph	442	6	79.3	.....	102	19	54	8	33	3.16	.....	1.27	0	10	12	17	2	sw.	A. H. York.
Randleman	....do	810	8	.....	.....	.....	.....	.....	.....	.....	5.47	.....	2.20	0	10	.....	.....	.....	.....	L. D. Mendenhall.
Reidsville	Rockingham	828	14	79.2	+ 3.0	98	2†	58	8	32	5.81	+ 0.57	2.82	0	12	14	12	5	sw.	E. M. Redd.
Rock House	Macon	3,100	21	70.7	− 0.2	90	18	54	8	21	6.85	− 1.71	1.35	0	17	12	14	5	sw.	Barry C. Hawkins.
Rockingham	Richmond	210	18	81.1	+ 1.0	100	19	62	7†	30	7.25	+ 0.69	1.95	0	15	.....	.....	.....	.....	H. L. Ledbetter.
Rocky Mount	Nash	105	2	.....	.....	.....	.....	.....	.....	.....	4.78	.....	2.60	0	7	.....	.....	.....	.....	G. P. Womble.
Salisbury	Rowan	760	29	81.0	+ 2.0	102	18†	54	8	35	4.30	− 0.57	1.42	0	9	16	0	15	w.	Miss Thelma Wilkinson.
Saxon	Stokes	900	21	.....	.....	100	18	.....	.....	.....	3.31	− 1.00	0.78	0	6	.....	.....	.....	se.	L. A. Duncan.
Scotland Neck	Halifax	80	9	76.7	.....	95	2	53	8	27	4.59	.....	0.93	0	13	9	14	8	sw.	J. Y. Savage.
Settle	Iredell	700	17	78.0	+ 0.7	98	19	53	8	31	6.68	+ 0.79	2.03	0	9	13	13	5	sw.	C. H. Smith.
Sloan	Duplin	50	20	79.4	+ 0.6	98	3	58	8†	29	10.09	+ 2.58	2.59	0	11	12	11	8	sw.	D. M. Sholar.
Smithfield	Johnston	151	23	81.4	+ 2.0	99	2†	58	8	29	4.89	− 1.88	2.40	0	9	16	4	11	s.	Edwin S. Sanders.

TABLE 1.—*Climatological data for July, 1913. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Carolina—Contd.																				
Southport	Brunswick	18	58	80.0	− 0.4	92	4	69	16†	18	6.04	− 0.77	4.02	0	7	15	12	4	sw.	Mrs. C. E. Taylor.
Statesville	Iredell	950	25	78.4	+ 1.3	98	19	56	8	29	3.31	− 1.50	1.11	0	7	11	17	3	sw.	D. Matt Thompson.
Tarboro	Edgecombe	50	28	82.0[a]	+ 2.1	101	2	56	8	32	5.41	− 0.94	2.68	0	11	....	....	....	sw.	E. V. Zoeller.
Tryon (near)	Polk	1,300	1	.....	.....	.....	.....	.....	.....	.....	5.99	.....	1.14	0	11	.....	.....	.....	.....	W. T. Lindsey.
Weldon	Halifax	81	41	78.7	− 0.7	99	2	56	8	29	4.66	− 0.74	1.30	0	11	11	11	9	sw.	H. S. S. Cooper.
Willard	Pender	51	5	80.0	.....	98	2	56	10	33	8.08	.....	1.66	0	10	21	4	6	s.	J. H. Jefferies.
Wilmington	New Hanover	52	42	80.0	+ 1.3	96	3	66	8	21	5.93	− 1.04	2.53	0	13	6	21	4	sw.	U. S. Weather Bureau.
Winston-Salem	Forsyth	1,000	18	78.2	+ 0.6	98	19†	61	20	28	5.01	− 0.60	1.73	0	10	24	0	7	se.	Rev. H. E. Rondthaler.
South Carolina.																				
Aiken	Aiken	565	18	80.8	− 0.4	104	19	66	8†	30	3.10	− 2.01	1.15	0	4	19	9	3	s.	C. E. Carman.
Allendale	Barnwell	186	24	84.6	+ 3.4	105	18†	63	9	34	2.25	− 3.32	1.10	0	8	21	3	7	.....	E. C. Cavan.
Anderson	Anderson	764	11	82.0	+ 3.1	105	18†	62	8	29	6.16	+ 1.27	2.35	0	12	17	1	13	w.	H. H. Russell.
Batesburg	Lexington	656	24	81.4	+ 1.5	102	19	63	8	29	2.10	− 3.22	0.84	0	6	16	9	6	n.	E. J. Hite.
Beaufort	Beaufort	20	26	81.2[j]	− 0.4	96[j]	3	68[j]	9†	25	9.81	+ 4.01	3.35	0	6	....	....	....	sw.	Miss Lillian H. Rice.
Blackville	Barnwell	296	23	84.3	+ 2.6	107	18†	62	9	37	5.34	+ 0.01	3.40	0	9	19	4	8	sw.	Mrs. D. B. Sanders.
Blairs	Fairfield	293	7	.....	.....	.....	.....	.....	.....	.....	2.38	.....	0.79	0	7	18	3	10	sw.	J. N. Owens.
Bowman	Orangeburg	160	11	82.0	+ 1.5	102	6	60	8	32	5.25	+ 0.58	2.15	0	11	18	9	4	sw.	B. O. Evans.
Broxton	Hampton	.....	2	.....	.....	.....	.....	.....	.....	.....	3.61	.....	0.90	0	9	.....	.....	.....	w.	Thomas D. Williams.
Calhoun Falls	Abbeville	508	19	.....	.....	.....	.....	.....	.....	.....	3.91	− 1.54	1.50	0	7	11	11	9	sw.	L. M. Parker.
Camden	Kershaw	222	46	82.6	.....	100	6†	65	8	28	7.40	+ 2.40	3.74	0	11	17	8	6	sw.	W. C. Brown.
Catawba	York	562	7	.....	.....	.....	.....	.....	.....	.....	3.60	.....	1.85	0	7	15	8	8	s.	James C. Faris.
Chappells	Newberry	402	7	.....	.....	.....	.....	.....	.....	.....	2.16	.....	0.90	0	4	19	0	12	w.	J. J. Murran.
Charleston	Charleston	48	42	82.6	+ 0.7	95	3	71	15	23	5.51	− 1.75	3.54	0	8	7	15	9	s.	U. S. Weather Bureau.
Cheraw	Chesterfield	144	24	81.6	+ 1.7	104	19	61	8	29	6.95	+ 0.95	2.08	0	13	14	8	9	s.	J. H. Powe.
Clemson College	Oconee	850	21	79.0	+ 0.2	97	18†	59	8	25	4.45	− 0.88	1.00	0	9	21	9	1	w.	Prof. John N. Hook.
Columbia	Richland	351	26	82.2	+ 1.1	102	19	65	8	33	5.82	− 0.24	2.70	0	12	7	14	10	sw.	U. S. Weather Bureau.
Conway	Horry	25	20	81.4	+ 1.6	101	3	62	9	30	5.48	− 1.28	1.70	0	8	12	0	19	s.	Paul Quattlebaum.
Darlington	Darlington	175	17	80.8[a]	.....	100[a]	3	60[a]	9	29	6.67	+ 1.61	1.80	0	7	....	....	....	.....	D. C. McCall.
Dillon	Marion	100	8	81.2	+ 0.6	99	3	62	9	26	9.68	+ 3.92	3.00	0	13	....	....	....	.....	A. E. Rowell.
Edisto	Bamberg	127	25	.....	.....	.....	.....	.....	.....	.....	5.19	− 0.19	2.20	0	9	23	6	2	s.	Nathan Jenkins.
Effingham	Florence	106	20	.....	.....	.....	.....	.....	.....	.....	1.15	− 3.70	0.65	0	3	21	1	9	sw.	H. B. McCall.
Ferguson	Berkeley	51	4	84.5	+ 5.4	100	18	69	14	29	2.12	− 4.04	0.45	0	10	19	1	11	sw.	Joseph Simons.
Florence	Florence	136	24	82.1	+ 0.8	103	19	62	9	33	6.10	− 0.50	2.26	0	10	17	2	12	sw.	H. K. Gilbert.
Gaston Shoals	Cherokee	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.56	.....	0.35	0	13	19	2	10	e.	Harry A. Parshall.
Georgetown	Georgetown	12	19	82.9	+ 2.4	98	2†	66	9	26	5.75	− 1.64	2.10	0	7	1	30	0	.....	A. P. Hazard.
Greenville	Greenville	989	20	79.3	+ 3.3	100	18†	57	8	27	6.60	+ 0.91	1.25	0	13	17	4	10	w.	Spartan Goodlette.
Greenwood	Greenwood	671	24	81.8	+ 1.8	109	19	60	8	37	3.84	− 1.24	1.47	0	7	19	0	12	w.	M. M. Calhoun.
Heath Springs	Lancaster	568	11	80.4	.....	101	18†	60	8†	32	7.01	.....	1.65	0	12	5	16	10	sw.	J. Marvin Bowers.
Kingstree	Williamsburg	57	24	82.2	+ 1.6	100	2†	61	9†	32	3.64	− 2.19	0.68	0	10	21	2	8	sw.	A. O. Matthews.
Liberty	Pickens	900	18	80.0	+ 0.9	101	18†	57	8	27	6.19	+ 0.79	2.10	0	12	15	12	4	sw.	John T. Boggs.
Little Mountain	Newberry	711	19	83.2	+ 2.6	107	19	62	11	35	5.38	+ 0.48	2.25	0	5	30	0	1	s.	J. M. Sease, M. D.
Meriwether	Edgefield	.....	3	83.0[e]	.....	107[e]	19	60[e]	8	34	3.24	.....	1.71	0	8	.....	.....	.....	.....	William S. Middleton.
Monetta	Saluda	.....	1	82.2	.....	105	19	62	8	31	2.32	.....	1.01	0	8	15	13	3	sw.	Joseph M. Johnson.
Newberry	Newberry	502	8	82.8	+ 2.5	106	19	60	8	32	3.83	− 1.54	1.49	0	10	1	26	4	w.	W. G. Peterson.
Pelzer	Anderson	873	7	.....	.....	.....	.....	.....	.....	.....	6.34	.....	2.06	0	9	18	5	8	w.	J. M. Ward.
Pinopolis	Berkeley	55	19	.....	.....	.....	.....	.....	.....	.....	3.84	− 2.38	1.20	0	9	12	12	7	se.	Miss E. P. Ravenel.
St. George	Dorchester	109	24	82.7	+ 1.9	101	19	60	9	31	2.61	− 3.37	0.85	0	8	20	1	10	s.	G. F. Lewis.
St. Matthews	Orangeburg	269	24	82.5	+ 2.5	104	19	62	9	29	4.58	− 1.19	1.50	0	11	18	8	5	e.	J. S. Wannamaker.
Saluda	Saluda	530	10	82.8	.....	105	18	56	8	35	2.09	.....	0.51	0	12	19	6	6	s.	Mrs. F. V. J. Maxwell.
Santuc	Union	572	17	82.4	+ 3.2	109	19	59	8	39	4.34	− 0.65	1.30	0	12	6	19	6	sw.	E. W. Jeter.
Smith Mills	Williamsburg	62	17	.....	.....	.....	.....	.....	.....	.....	9.13	+ 2.71	3.10	0	11	20	0	11	w.	W. G. Walker.
Society Hill	Darlington	75	15	82.0[l]	+ 2.6	101	3†	67[l]	18	34	8.25	+ 2.07	3.75	0	7	17	14	0	sw.	T. Ellison Simpson.
Spartanburg	Spartanburg	875	21	80.6	+ 1.3	102	19	58	8	32	6.96	+ 2.38	2.89	0	17	13	2	16	.....	F. P. Robinson.
Summerville	Dorchester	75	15	83.0	+ 3.3	104	6	62	9	33	1.79	− 4.65	0.77	0	12	0	31	0	sw.	Miss E. H. Gadsden.
Sumter	Sumter	169	...	81.8	.....	102	6	65	22	23	3.31	.....	2.01	0	8	14	9	8	sw.	Duane L. Wannamaker.
Trenton	Edgefield	620	15	82.1	+ 1.7	102	19	63	8	30	3.36	−2.41	1.24	0	8	8	20	3	s.	C. A. Long.
Walterboro	Colleton	69	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19	0	12	.....	H. A. Patterson.
Winnsboro	Fairfield	545	22	80.8	+ 1.7	104	19	65	10	33	5.75	+ 1.54	1.67	0	5	16	14	1	se.	J. W. Seigler.
Winthrop College	York	690	13	81.3	+ 1.5	105	19	62	8	31	5.69	+ 1.49	2.00	0	7	2	22	7	sw.	W. P. Goodman.
Yemassee	Hampton	24	17	81.0	− 0.4	100	6	58	9	34	5.20	− 1.56	1.33	0	13	23	2	6	s.	J. G. Hutson.
Georgia.																				
Abbeville	Wilcox	180	10	.....	.....	.....	.....	.....	.....	.....	12.43	+ 6.67	4.63	0	16	17	2	12	w.	W. H. Calhoun.
Adairsville	Bartow	772	21	81.5	+ 2.9	102	19	58	8	35	2.64	− 2.51	1.16	0	4	14	8	9	.....	Mrs. R. C. Evins.
Albany	Dougherty	232	26	83.3	+ 0.4	104	18	69	1	30	9.01	+ 3.33	1.70	0	16	8	7	16	sw.	George C. Brosnan.
Allapaha	Berrien	293	23	82.1	+ 0.6	104	18	65	1†	32	8.39	+ 2.60	2.40	0	13	4	25	2	sw.	J. F. Rice.
Americus	Sumter	362	28	83.1	+ 0.8	107	18	65	8	34	5.09	− 0.05	1.46	0	12	8	10	13	sw.	Joseph M. Bryan.
Athens	Clarke	694	31	81.2	+ 2.9	108	19	61	8	34	3.58	− 1.29	0.91	0	12	27	1	3	w.	C. D. Cox.
Atlanta	Fulton	1,218	48	79.6	+ 1.0	99	19	65	8	25	4.85	+ 0.61	0.96	0	17	10	6	15	sw.	U. S. Weather Bureau.
Augusta	Richmond	180	67	82.4	+ 0.7	102	19	68	8	26	5.48	+ 0.70	1.35	0	9	7	10	14	s.	Do.
Bainbridge	Decatur	119	21	82.8	+ 1.1	106	18	67	8	32	6.55	+ 0.07	1.30	0	17	22	4	5	s.	W. H. Morrow.
Barnesville	Pike	875	3	81.4[a]	.....	104	19	64	8	31	6.29	.....	1.53	0	12	....	....	....	sw.	Prof. T. O. Galloway.
Butler	Taylor	650	12	.....	.....	.....	.....	.....	.....	.....	6.40	+ 0.13	1.63	0	9	14	2	15	w.	Mrs. M. F. Wallace.
Camak	Warren	613	21	83.0	+ 2.6	108	19	61	8†	35	3.07	− 2.18	1.37	0	7	13	7	11	w.	J. A. Chapman.
Canton	Cherokee	894	22	.....	.....	.....	.....	.....	.....	.....	8.55	+ 3.90	2.40	0	10	17	4	10	.....	Mrs. Ada P. Mills.
Carlton	Madison	557	14	.....	.....	.....	.....	.....	.....	.....	4.39	− 0.25	1.86	0	6	20	3	8	w.	M. C. Power.
Clayton	Rabun	2,100	19	77.0	+ 2.6	98	19	59	7	29	9.82	+ 2.44	3.12	0	10	17	9	5	w.	A. J. Duncan.
Columbus	Muscogee	262	25	82.8	+ 1.7	105	19	69	8†	30	6.48	− 0.90	1.90	0	15	14	2	15	w.	A. J. Land.
Concord	Pike	850	....	79.5	.....	98	19	64	9	26	11.14	.....	3.25	0	14	16	10	5	.....	C. T. Smith.
Covington	Newton	800	21	.....	.....	.....	.....	.....	.....	.....	6.15	+ 1.28	1.10	0	10	14	9	8	s.	Mrs. Sarah E. Cruse.
Dahlonega	Lumpkin	1,519	21	78.1	+ 2.8	101	19	55	8	31	.....	.....	.....	0	.....	.....	.....	.....	.....	Prof. B. P. Gaillard.
Diamond	Gilmer	2,020	21	75.4[a]	+ 1.1	100	19	52	8	37	3.68	− 2.87	1.92	0	8	14	11	6	.....	Robert A. Kimzey.
Dublin	Laurens	452	19	82.0	.....	105	19	63	9	32	5.90	+ 0.28	1.90	0	12	12	14	5	sw.	Mrs. M. E. Martin.
Eastman	Dodge	361	21	84.1	+ 2.1	108	18†	66	9	33	2.64	− 3.37	0.63	0	9	5	15	11	w.	Mrs. Grace Bohannon.
Eatonton	Putnam	577	9	80.4[a]	.....	105	19	60	8	31	4.81	+ 0.20	1.56	0	9	....	....	....	.....	Prof. W. C. Wright.
Elberton	Elbert	710	21	81.9	+ 2.5	109	19	63	8	34	5.24	− 0.10	1.40	0	8	21	10	0	w.	H. A. Roebuck.
Experiment	Spalding	946	12	80.4	+ 1.3	100	19	66	8	29	4.27	+ 0.72	1.48	0	9	....	....	....	.....	J. H. Kimburgh.
Fort Gaines	Clay	116	25	82.6	+ 1.2	105	18	66	8†	33	4.47	− 1.42	0.95	0	11	15	3	13	sw.	Miss Eva Graham.
Gainesville	Hall	1,254	34	78.1	+ 0.1	102	19	53	8	34	6.40	+ 1.52	1.78	0	12	13	6	12	w.	W. C. Walker.
Gillsville	....do	1,052	21	.....	.....	.....	.....	.....	.....	.....	5.83	+ 0.60	2.20	0	8	21	0	10	w.	George W. Lichtenstine.
Glennville	Tatnall	.....	8	82.6	.....	99	19	68	9†	26	6.92	.....	1.42	0	17	11	18	2	sw.	Miss Fannie Bernard.
Gore	Chattooga	729	14	80.2	+ 2.7	104	18†	58	8	37	4.25	− 1.29	1.25	0	12	19	6	6	nw.	H. M. Ponder.

TABLE 1.—*Climatological data for July, 1913. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Georgia—Continued.																				
Greensboro	Greene	598	11	80.9	+ 1.1	106	19	61	8†	34	4.74	− 0.38	1.94	0	8	13	9	9	w.	R. L. Caldwell.
Griffin	Spalding	975	24	81.6	+ 1.8	102	19	66	8	27	5.28	+ 0.69	1.20	0	12	11	13	7	w.	J. M. Mathews.
Harrison	Washington	378	14	81.6[a]	+ 1.2	103	19	63	13	31	4.94	+ 0.44	1.39	0	7	5	19	7	sw.	Thomas L. Wood.
Hawkinsville	Pulaski	235	17	83.0	+ 2.4	105	18	68	9†	28	4.25	− 1.13	1.26	0	11	14	3	14	.....	R. H. Wood.
Highland Dam	Muscogee	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.45	.....	2.25	0	12	7	0	24	.....	F. C. Tibbs.
Jesup	Wayne	101	18	82.0	.....	100	19	65	15	30	6.75	+ 1.01	1.90	0	10	10	15	6	s.	W. L. Belcher.
Lisbon	Lincoln	326	6	82.2	.....	106	18	59	8	34	4.39	.....	2.25	0	14	.....	.....	.....	.....	B. J. DuBose.
Lost Mountain	Cobb	1,175	13	80.2	+ 1.7	102	19	58	8	34	4.38	− 0.09	1.45	0	8	1	27	3	s.	A. N. Mayes.
Louisville	Jefferson	259	20	82.3	+ 1.9	103	19	65	9	28	6.60	+ 1.06	1.49	0	12	10	18	3	.....	J. C. Little.
Lumber City	Telfair	150	4	.....	.....	.....	.....	.....	.....	.....	4.74	.....	1.23	0	11	18	4	9	w.	Walter A. Hilton.
Lumpkin	Stewart	650	18	80.9	+ 0.3	103	19	65	26	25	4.86	+ 0.29	1.52	0	12	10	17	4	nw.	R. T. Humber.
Macon	Bibb	370	32	81.7	+ 0.5	104	19	67	9	28	6.56	+ 2.06	2.17	0	13	8	10	13	s.	U. S. Weather Bureau.
Marshallville	Macon	500	20	82.4	+ 0.9	107	19	65	8	32	6.65	+ 1.15	2.82	0	10	12	11	8	w.	E. C. Bryan.
Milledgeville	Baldwin	276	25	82.5	+ 1.7	104	19	64	8	28	6.09	+ 0.89	1.50	0	15	18	6	7	nw.	Prof. O. M. Cone.
Millen	Jenkins	158	25	83.8	+ 2.0	106	18	62	9	33	3.24	− 1.58	0.80	0	9	22	0	9	sw.	M. G. McComb.
Mineral Bluff	Fannin	1,571	....	76.8	.....	98	19	50	8	39	3.08	.....	1.30	0	7	.....	.....	.....	.....	W. T. S Dickey.
Montezuma	Macon	292	8	.....	.....	.....	.....	.....	.....	.....	5.89	.....	1.41	0	11	12	1	18	sw.	J. C. Collins.
Monticello	Jasper	800	18	81.2	+ 1.1	104	18	63	8	30	6.97	+ 1.85	1.25	0	18	22	9	0	.....	Miss Maude Penn.
Newnan	Coweta	959	24	80.2	+ 0.5	99	19	63	8	29	8.39	+ 3.30	1.15	0	14	15	4	12	s.	Mrs. Ida J. Milner.
Norcross	Gwinnett	1,078	3	.....	.....	.....	.....	.....	.....	.....	5.46	.....	1.34	0	16	16	7	8	.....	W. O. Medlock.
Point Peter	Oglethorpe	600	23	79.2	+ 0.1	105	19	60	8	30	3.74	− 1.39	2.00	0	8	15	10	6	s.	C. M. Witcher.
Poulan	Worth	365	23	82.4	+ 2.5	103	18	67	8	28	5.82	− 0.88	1.33	0	9	10	17	4	.....	C. T. Merritt.
Putnam	Marion	.....	13	81.0	+ 0.2	104	19	63	8†	34	3.97	− 0.40	1.00	0	12	7	19	5	sw.	Miss Mildred Collum.
Quitman	Brooks	173	27	82.0	+ 0.5	101	17†	69	23	26	4.47	− 3.39	0.90	0	9	27	0	4	nw.	A. B. Jones.
Ramhurst	Murray	900	20	78.2[a]	+ 1.1	100	19	54	8	34	3.45	− 1.70	1.10	0	9	.....	.....	.....	sw.	D. E. Humphreys.
Resaca	Gordon	657	19	.....	.....	.....	.....	.....	.....	.....	5.47	+ 1.36	2.34	0	8	23	3	5	w.	D. A. Norton.
Rome	Floyd	576	54	82.8	+ 3.1	109	19	61	8	36	3.42	− 0.58	1.93	0	8	16	8	7	s.	W. M. Towers.
St. George	Charlton	50	6	80.6	.....	97	3	65	16	31	8.77	.....	1.85	0	15	18	12	1	se.	A. N. Lund.
Savannah	Chatham	65	62	82.4	+ 0.7	97	3	69	17	23	6.53	− 0.36	1.96	0	13	3	19	9	sw.	U. S. Weather Bureau.
Statesboro	Bulloch	253	13	84.1	+ 2.5	106	19	66	9	33	4.61	− 1.27	2.45	0	10	13	18	0	s.	W. C. Cromley.
Talbotton	Talbot	750	19	82.0[a]	+ 2.6	110	19	65	8	34	4.27	− 1.15	2.15	0	13	17	0	14	sw.	Dr. E. L. Bardwell.
Tallapoosa	Haralson	1,150	14	79.8	+ 1.6	101	19	60	8	34	3.59	− 1.72	0.85	0	10	9	6	16	sw.	C. C. Sigman.
Thomasville	Thomas	273	31	82.3	+ 1.0	104	18	69	27	29	4.78	− 1.97	1.94	0	12	9	13	9	sw.	U. S. Weather Bureau.
Toccoa	Stephens	1,050	27	78.8	+ 1.0	102	19	59	8	34	5.17	− 0.79	1.21	0	9	15	4	12	w.	J. A. Creasy.
Valdosta	Lowndes	220	8	82.8	.....	103	18	67	23	29	6.35	.....	1.20	0	10	27	0	4	w.	Miss Annie L. Twitty.
Valona	McIntosh	10	15	80.4	0.0	97	19	65	4	25	9.05	+ 2.19	2.73	0	8	18	1	12	se.	George E. Atwood.
Washington	Wilkes	630	22	81.0	+ 0.8	102	19	65	8	27	4.09	− 1.10	1.53	0	13	17	6	8	w.	Miss Ella B. Smith.
Waycross	Ware	131	24	82.6	+ 0.4	100	18	68	23	28	8.91	+ 2.92	2.10	0	13	18	10	3	.....	Dr. J. F. Wilson.
Waynesboro	Burke	86	21	84.5	.....	107	19	66	9	30	3.06	− 2.45	1.15	0	7	17	1	13	w.	Mrs. H. W. Blount.
West Point	Troup	620	23	80.0	.....	102	19	66	8	28	3.67	− 0.97	0.65	0	14	11	1	19	w.	E. N. Dunn.
Woodbury	Meriwether	641	12	.....	.....	.....	.....	.....	.....	.....	10.05	+ 5.67	3.25	0	13	16	9	6	s.	E. T. Riggins.
Florida.																				
Apalachicola	Franklin	.....	8	83.0	.....	103	18	72	7†	27	4.09	.....	1.90	0	9	11	18	2	se.	A. F. Whiteside.
Arcadia	De Soto	61	12	82.0	+ 0.2	96	11†	67	10	28	6.22	− 2.77	1.50	0	22	4	27	0	w.	C. S. Bushnell.
Avon Park	do	150	14	81.8	+ 0.2	95	12†	69	10†	25	7.47	− 0.80	1.81	0	15	9	20	2	e.	William King.
Bartow	Polk	115	25	80.9	− 0.5	95	17	66	10	26	5.81	− 1.47	1.51	0	19	0	16	15	se.	William Hood.
Bassenger	Osceola	.....	.....	81.0	.....	94	16†	67	10	25	3.60	.....	1.55	0	5	20	10	1	.....	L. N. Kline.
Bradentown	Manatee	10	29	.....	.....	95	23	.....	.....	.....	7.27	− 3.63	.....	0	14	20	9	2	sw.	F. H. Braymer.
Bristol	Liberty	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.39	.....	0.76	0	15	.....	.....	.....	.....	J. N. Harrell.
Brooksville	Hernando	126	20	81.4	+ 0.7	95	2†	69	7†	25	7.70	− 2.22	2.50	0	12	12	17	2	w.	C. C. Peck.
Carrabelle	Franklin	10	14	82.4	+ 0.7	101	18	66	15†	29	5.50	− 1.06	1.90	0	8	.....	.....	.....	.....	J. J. Blomquist.
Cedar Keys	Levy	10	24	82.7	+ 0.6	94	18	67	7	22	6.07	− 2.58	1.24	0	9	.....	.....	.....	w.	S. T. White.
Clermont	Lake	105	19	84.7	+ 1.9	101	18	70	9†	28	4.74	− 2.83	2.00	0	7	1	30	0	s.	S. S. Fesler.
Crescent City	Putnam	.....	15	84.0	+ 2.2	103	18	69	22	31	4.42	− 2.13	1.22	0	17	9	22	0	.....	Walter Cliff.
De Funiak Springs	Walton	193	14	80.8	+ 0.5	101	18	67	15	27	8.18	+ 0.61	1.50	0	16	13	17	1	sw.	W. O. H. Shepard.
De Land	Volusia	27	16	81.6	+ 1.4	98	18	66	14	29	2.89	.....	0.66	0	9	0	31	0	se.	A. C. Haynes.
Eustis	Lake	56	22	84.0	+ 1.8	99	15†	70	7†	29	3.50	− 3.79	1.09	0	12	25	5	1	sw.	C. T. Smith.
Federal Point	Putnam	10	21	83.1	+ 2.2	101	3	68	8†	31	3.30	− 3.66	0.60	0	18	13	18	0	sw.	E. S. Hubbard.
Fenholloway	Taylor	75	6	81.8	.....	99	19	68	7†	30	7.13	.....	2.00	0	8	0	31	0	.....	Joseph Wiggiesworth.
Fernandina	Nassau	10	20	82.4[a]	+ 1.4	96[a]	14†	70	24	25	3.17	− 2.97	1.12	0	9	11	0	20	se.	T. C. Borden.
Fort Lauderdale	Dade	10	1	81.8	.....	93	18†	69	17†	24	2.62	.....	0.66	0	10	10	21	0	.....	W. M. Heine.
Fort Meade	Polk	125	23	81.4	+ 0.8	98	13	61	10†	39	8.26	− 0.75	1.95	0	17	14	12	5	sw.	G. L. Brodrick.
Fort Myers	Lee	12	40	80.7	− 0.2	93	21	68	14	22	7.09	− 1.13	2.75	0	18	22	9	0	se.	W. F. Gwynne.
Fort Pierce	St. Lucie	10	12	80.8	+ 0.6	96	19†	69	8†	26	1.09	− 4.78	0.45	0	7	21	10	0	se.	T. C. Nicholson.
Gainesville	Alachua	176	17	81.2	− 0.7	95	3†	66	19	29	9.39	+ 1.93	2.70	0	18	12	13	6	sw.	John Schnabel.
Garniers (near)	Walton	22	1	81.6	.....	103	17	65	8	31	5.04	.....	1.22	0	17	15	10	6	se.	U. S. Forest Service.
Grasmere	Orange	175	15	81.4	− 0.7	97	16†	67	10†	30	6.58	.....	1.20	0	15	28	3	0	.....	J. B. Escott.
Griffin	Dade	.....	.....	77.0	.....	92	18	63	3	27	3.26	.....	0.80	0	10	10	19	2	e.	T. M. Griffin.
Hilliard	Nassau	69	4	81.0	.....	97	3	63	23	30	6.77	.....	1.63	0	13	5	25	1	.....	B. A. Tibbits.
Homestead	Dade	12	3	81.1	.....	93	5	67	9†	23	3.60	.....	1.06	0	12	12	19	0	e.	J. A. Kahl.
Hypoluxo	Palm Beach	9	17	82.3	+ 0.9	96	21	67	9†	27	3.50	− 1.99	2.20	0	7	24	7	0	e.	G. A. Angevine.
Inverness	Citrus	43	13	80.6	+ 0.2	95	3†	69	13	23	5.79	− 5.40	1.80	0	12	1	30	0	se.	W. H. Miller.
Jacksonville	Duval	108	42	82.3	+ 1.4	97	16	69	13	25	6.28	+ 0.08	2.28	0	15	11	19	1	sw.	U. S. Weather Bureau.
Jasper	Hamilton	152	12	81.0	− 0.3	99	18	66	23	27	6.22	− 0.41	1.35	0	10	7	18	6	w.	Mrs. W. C. Caldwell.
Johnstown	Bradford	125	13	83.4[d]	+ 2.1	98	18	67[b]	10	25	11.59	+ 3.57	1.83	0	18	12	18	1	.....	A. M. C. Brasch.
Key West	Monroe	14	42	82.8	− 0.9	90	17	73	11	14	1.00	− 4.59	0.26	0	9	15	15	1	se.	U. S. Weather Bureau.
Kissimmee	Osceola	65	20	83.3[b]	+ 1.3	97	3†	67[c]	14	28	3.68	− 3.68	0.98	0	12	4	26	1	sw.	J. A. Simpson.
Lake City	Columbia	210	28	81.5	+ 0.6	98	18	67	7†	27	8.88	+ 0.93	2.35	0	20	3	24	4	se.	W. B. Knight.
Live Oak	Suwanee	109	13	81.6	.....	99	17†	68	10	29	7.18	+ 0.52	2.40	0	17	14	9	8	sw.	Rev. J. A. Montgomery.
Lucerne Park	Polk	.....	1	82.4	.....	96	17	69	3	25	4.26	.....	1.20	0	12	3	28	0	se.	L. D. Niles.
Macclenny	Baker	125	16	82.0[d]	+ 0.2	98[d]	3†	66[d]	22	29	4.00	− 4.05	0.89	0	14	.....	.....	.....	.....	Griffing Bros. Co.
Madison	Madison	200	13	81.8	+ 0.7	100	18	66	7	27	6.04	− 2.36	1.10	0	18	3	18	10	sw.	E. J. Vann.
Malabar	Brevard	24	19	82.0	+ 0.5	98	7	67	10	28	0.26	− 4.38	0.12	0	4	29	2	0	se.	J. F. Farley.
Marianna	Jackson	80	10	83.4	+ 2.8	103	18	68	15	31	6.12	− 0.54	1.33	0	16	21	4	6	se.	W. W. Brooks.
Merritts Island	Brevard	20	30	81.7	+ 0.3	93	17†	70	10†	19	1.63	− 3.91	1.59	0	2	19	12	0	se.	F. Ulrich.
Miami	Dade	47	11	81.3	− 0.6	91	18	70	14	19	2.98	− 4.26	0.56	0	11	2	26	3	se.	U. S. Weather Bureau.
Middleburg	Clay	10	12	82.0[a]	+ 0.4	98[a]	16	67[a]	16†	31	5.21	− 2.27	2.00	0	10	.....	.....	.....	.....	G. A. Chalker.
Molino	Escambia	49	11	.....	.....	102	18	.....	.....	.....	9.58	+ 2.17	2.70	0	10	13	7	11	w.	W. H. Trimmer.
Mount Pleasant	Gadsden	260	7	80.9	.....	103	18	67	13†	32	7.38	.....	1.52	0	12	.....	.....	.....	s.	Miss Addie Grubb.
New Smyrna	Volusia	9	28	80.4	+ 0.6	97	16†	67	23†	29	1.30	− 4.19	0.37	0	4	4	26	1	se.	F. J. Nordman.
Orange City	do	39	19	82.2	− 0.1	100	19	65	15	32	3.19	− 3.26	0.89	0	9	21	10	0	sw.	J. D. Graham.
Orlando	Orange	111	20	82.6	+ 0.7	96	18	69	10	22	10.53	+ 3.29	2.41	0	13	6	21	4	se.	James Thomson.
Pensacola	Escambia	149	33	81.0	− 0.4	97	18	69	23	2[illegible]	7.96	+ 0.69	3.33	0	16	7	16	8	s.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for July, 1913. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Florida—Continued.																				
Pinellas Park	Pinellas	20	2	81.2	.....	94	23	67	15†	24	7.85	.....	1.22	0	18	9	21	1	w.	Miss E. Borgman.
Plant City	Hillsboro	121	19	83.2	+ 2.2	98	29	68	10†	28	3.92	− 4.70	1.20	0	11	4	27	0	s.	E. B. Trask.
Ritta	Palm Beach	.....	.....	80.4	.....	93	17†	67	10†	24	2.12	.....	0.77	0	15	19	12	0	e.	M. Toda.
Rockwell	Marion	10	11	81.7[d]	− 0.1	95[d]	3†	69[d]	29	25	8.17	+ 0.46	2.00	0	10	.....	.....	.....	w.	Dunellon Phosphate Co.
St. Augustine	St. Johns	10	61	81.8	+ 1.0	100	6	68	16†	31	2.45	− 3.06	0.90	0	5	29	1	1	se.	E. F. Joyce.
St. Cloud	Osceola	.....	.....	81.5	.....	97	16	65	10	26	5.28	.....	1.25	0	14	18	0	13	e.	J. T. Bearss.
St. Leo	Pasco	140	16	81.1	− 0.4	93	3†	68	18	25	5.06	− 4.20	2.17	0	14	7	23	1	w.	Gerard Schneider.
Sand Key	Monroe	.....	1	80.7	.....	88	6	69	7	15	1.95	.....	1.23	0	9	15	15	1	e.	U. S. Weather Bureau.
Sanford	Orange	25	5	81.5	.....	97	18	68	10†	27	6.27	.....	1.96	0	10	21	7	3	se.	H. C. DuBose.
Satsuma Heights	Putnam	98	5	82.4	.....	98	17†	68	14†	28	5.66	.....	1.55	0	12	12	19	0	.....	Satsuma Company.
Switzerland	St. Johns	10	20	81.4[a]	+ 1.1	96[a]	2	68[a]	8†	26	5.62	− 2.15	1.72	0	9	.....	.....	.....	.....	Mrs. W. C. Steele.
Tallahassee	Leon	192	26	82.2	+ 1.9	102	18	69	14	27	3.97	− 3.72	1.20	0	11	24	6	1	w.	W. H. Markham.
Tampa	Hillsboro	79	23	81.2	+ 1.2	93	29	65	24	28	7.01	− 1.42	1.66	0	19	9	20	2	e.	U. S. Weather Bureau.
Tarpon Springs	Pinellas	20	28	81.2	+ 0.4	94	23	69	4†	24	4.00	− 4.95	0.55	0	17	15	16	0	w.	A. P. Albaugh.
Titusville	Brevard	16	17	81.5	+ 0.7	96	20	67	10	26	3.87	− 2.33	1.79	0	12	18	13	0	se.	F. M. Taylor.
Wausau	Washington	250	13	83.8[d]	+ 1.9	104[d]	18	65[c]	6	34	7.29	− 0.16	2.03	0	8	3	17	11	.....	Curtis Jones.
Zona	Dade	.....	.....	78.8	.....	95	18	64	17†	31	2.42	.....	0.86	0	12	16	15	0	e.	W. C. Hill.
Alabama.																				
Alaga	Houston	105	8	.....	.....	.....	.....	.....	.....	.....	5.84	.....	0.98	0	12	.....	.....	.....	.....	James L. Willis.
Anniston	Calhoun	728	22	79.8	+ 1.9	100	19	61	8	31	4.12	− 0.61	0.91	0	14	9	14	8	s.	U. S. Weather Bureau.
Ashville	St. Clair	685	20	80.6	+ 2.3	100	6	54	8	44	3.34	− 1.65	0.81	0	8	19	3	9	.....	A. L. Cather.
Auburn	Lee	732	31	80.7	+ 1.0	103	19	66	8	30	5.95	+ 0.39	1.14	0	16	8	5	18	sw.	Dr. James T. Anderson.
Benton	Lowndes	149	12	.....	.....	.....	.....	.....	.....	.....	6.47	+ 1.50	1.44	0	10	.....	.....	.....	.....	S. T. Pruitt.
Bermuda	Conecuh	.....	26	80.5	+ 0.5	100	19	63	13	32	5.02	− 0.07	0.93	0	18	2	23	6	sw.	M. J. Morris.
Birmingham	Jefferson	701	25	80.6	+ 0.8	99	19	68	21	30	4.72	+ 0.02	1.21	0	13	12	12	7	s.	U. S. Weather Bureau.
Calera	Shelby	500	12	.....	.....	.....	.....	.....	.....	.....	5.07	− 0.12	1.10	0	12	.....	.....	.....	.....	L. G. Privett.
Camp Hill	Tallapoosa	738	12	81.4	+ 2.0	102	19†	61	13	31	4.49	− 0.84	1.30	0	9	2	21	8	sw.	Dr. Lyman Ward.
Citronelle	Mobile	331	25	81.0	+ 0.2	98	19	68	4	27	5.69	− 0.50	1.46	0	16	2	18	11	sw.	Rev. W. H. Rowe.
Clanton	Chilton	590	20	80.4	+ 0.7	101	19	64	8	31	7.10	+ 2.27	1.57	0	13	.....	.....	.....	.....	Joseph B. Downs.
Cochrane	Pickens	100	3	.....	.....	.....	.....	.....	.....	.....	3.87	.....	1.15	0	8	.....	.....	.....	.....	T. H. G. Cooke.
Cordova	Walker	334	22	81.2	+ 2.1	101	18	61	8†	37	5.01	− 0.21	1.30	0	7	15	4	12	se.	Scott Maxwell.
Cullman	Cullman	802	5	80.4	.....	101	19	61	11	28	3.88	.....	1.00	0	11	15	8	8	sw.	Eugene A. Grayot.
Dadeville	Tallapoosa	760	8	.....	.....	.....	.....	.....	.....	.....	4.02	.....	0.79	0	10	.....	.....	.....	.....	Dr. W. B. Fulton.
Daphne	Baldwin	.....	22	79.8	− 1.0	98	18	66	19	27[a]	7.23	+ 0.03	1.80	0	13	17	2	12	nw.	John H. Young.
Demopolis	Marengo	.....	21	.....	.....	.....	.....	.....	.....	.....	7.43	+ 3.20	2.06	0	13	.....	.....	.....	.....	George E. Pegram.
Dothan	Houston	.....	.....	82.5	.....	98	17	70	8†	25	5.18	.....	2.41	0	17	19	11	1	se.	L. G. Biggers.
Eufaula	Barbour	200	29	79.2	− 1.3	103	19	63	8	31	5.78	− 0.60	1.30	0	15	.....	.....	.....	.....	Dr. J. B. Whitlock.
Evergreen	Conecuh	285	29	80.4	− 0.1	99	18	69	24	25	2.51	− 3.73	0.80	0	8	.....	.....	.....	.....	George W. Salter.
Fort Deposit	Lowndes	520	29	82.0	+ 0.9	101	19	64	8	30	6.26	+ 1.15	2.58	0	9	.....	.....	.....	.....	J. F. Hattemer.
Gadsden	Etowah	621	29	82.9	+ 3.4	104	19	61	8	37	4.36	− 0.16	1.08	0	11	.....	.....	.....	.....	D. P. Goodhue.
Goat Rock	Lee	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.20	.....	1.78	0	13	.....	.....	.....	.....	B. B. Hamby.
Goodwater	Coosa	826	18	80.0	− 0.2	101	19	66	9†	30	8.82	+ 3.45	2.49	0	15	.....	.....	.....	.....	Miss Daisy Buice.
Greensboro	Hale	220	34	82.2	+ 1.9	98	19	70	14†	24	6.91	+ 2.98	1.18	0	13	.....	.....	.....	.....	W. E. W. Yerby.
Greenville	Butler	444	12	.....	.....	.....	.....	.....	.....	.....	3.07	− 1.64	0.63	0	7	.....	.....	.....	.....	E. M. Lewis.
Hamilton	Marion	.....	17	80.2[c]	+ 1.1	101	.....	58	8	42[j]	3.33	− 1.03	1.11	0	8	15	10	6	sw.	Prof. H. O. Sargent.
Healing Springs	Washington	362	.....	.....	.....	.....	.....	.....	.....	.....	2.25	.....	0.61	0	11	.....	.....	.....	.....	James E. Lipscomb.
Highland Home	Crenshaw	.....	21	81.2	+ 1.5	100	19	66	22	32[a]	8.40	+ 2.96	2.17	0	14	12	7	12	w.	Prof. Samuel Jordan.
Livingston	Sumter	160	29	79.4	− 1.9	97	19	63	3†	26	8.80	+ 4.33	2.50	0	9	.....	.....	.....	.....	Robert L. King.
Lock 4	Talladega	510	16	80.6	+ 0.6	101	19	60	7†	39	5.45	+ 0.43	1.44	0	12	.....	.....	.....	.....	U. S. Engineers.
Maple Grove	Cherokee	.....	20	82.0	+ 2.8	104	19	60	7	37	2.35	− 2.56	0.75	0	7	8	22	1	sw.	Mrs. A. L. Awbrey.
Mentone	Dekalb	1,595	6	.....	.....	.....	.....	.....	.....	.....	3.46	.....	1.42	0	5	.....	.....	.....	.....	E. Mason.
Milstead	Macon	.....	10	.....	.....	.....	.....	.....	.....	.....	4.42	.....	1.12	0	13	.....	.....	.....	.....	W. U. Wall.
Mobile	Mobile	84	41	81.4	+ 0.9	98	6	70	6	28	4.41	− 2.63	1.22	0	18	5	18	8	sw.	U. S. Weather Bureau.
Montgomery	Montgomery	240	41	82.0	+ 1.0	101	19	69	15	28	2.30	− 2.38	0.71	0	12	9	11	11	sw.	Do.
Newbern	Hale	.....	21	83.2	+ 1.5	104	19	68	8†	33	4.01	− 0.38	1.41	0	13	4	18	9	s.	Dr. J. Huggins.
Oneonta	Blount	857	19	79.7	+ 2.0	104	18	59	8	36	2.94	− 3.19	0.86	0	13	9	4	18	w.	Aquilla J. Ketchum.
Opelika	Lee	917	34	78.8	− 1.5	98	19	60	23	23	5.98	+ 0.94	1.10	0	15	.....	.....	.....	.....	A. H. Read, jr.
Ozark	Dale	400	11	81.8	.....	100	19	65	27	27	9.20	.....	1.90	0	14	.....	.....	.....	.....	James A. Scott.
Prattville	Autauga	281	13	81.1	+ 0.8	102	19	66	8	30	3.41	.....	0.72	0	12	10	19	2	s.	Joseph B. Bell.
Pushmataha	Choctaw	.....	22	80.8[c]	− 0.1	96	19	65	9	29[c]	3.51	− 1.45	0.90	0	9	.....	.....	.....	.....	W. N. Horn.
Robertsdale	Baldwin	148	.....	.....	.....	.....	.....	.....	.....	.....	14.80	.....	3.58	0	21	.....	.....	.....	.....	Carl Boseck.
Selma	Dallas	147	33	83.5	+ 2.0	104	19	66	8	33	2.62	− 2.07	0.45	0	14	.....	.....	.....	.....	Charles F. Brislin.
Spring Hill	Mobile	312	9	.....	.....	.....	.....	69	6†	.....	12.89	.....	2.10	0	17	.....	.....	.....	sw.	Spring Hill College.
Talladega	Talladega	554	23	81.7	+ 1.4	102	19	62	7	34	4.74	+ 0.10	0.80	0	11	12	18	1	n.	W. E. Henkel[i]
Tallassee	Elmore	.....	22	.....	.....	.....	.....	.....	.....	.....	3.66	− 0.90	0.92	0	16	.....	.....	.....	.....	P. A. Noble.
Thomasville	Clarke	385	22	81.0	− 0.2	102	19	68	8†	28	6.00	+ 0.83	1.25	0	12	.....	.....	.....	.....	Miss H. T. Forster.
Troy	Pike	581	5	81.4	.....	103	19	68	21	34	6.89	.....	2.75	0	18	3	27	1	sw.	Frank L. Zimmermann.
Tuscaloosa	Tuscaloosa	230	32	84.2	+ 3.0	106	19	65	8	34	3.89	− 0.59	1.19	0	11	.....	.....	.....	.....	W. S. Wyman, jr.
Tuskegee	Macon	.....	13	82.4	+ 0.8	104	19	66	8†	33	5.36	+ 0.85	1.24	0	9	0	29	2	s.	Prof. George W. Carver.
Union Springs	Bullock	216	26	81.8	+ 0.6	102	19	66	8	31	7.05	+ 1.65	1.89	0	13	3	26	2	w.	P. L. Cowan.
Uniontown	Perry	273	27	82.0	+ 1.1	100	18†	68	7†	28	4.91	− 0.24	1.25	0	7	11	10	10	sw.	L. H. Moore.
Valley Head	Dekalb	1,031	28	80.4	+ 3.3	102	18†	58	7†	40[b]	2.60	− 2.62	0.60	0	6	22	8	1	s.	M. T. Floyd, M. D.
Wetumpka	Elmore	205	21	82.8	+ 1.1	104	19	66	8	33	5.88	+ 0.99	0.97	0	10	.....	.....	.....	.....	Mrs. Emmie Callaway.
Mississippi.																				
Aberdeen	Monroe	210	25	82.1	+ 1.5	101	6†	62	22	34	3.16	− 1.46	1.16	0	8	19	5	7	s.	L. D. Godfrey, jr.
Agricultural College	Oktibbeha	424	23	83.4	+ 2.3	101	19	65	22	32	3.98	− 0.65	1.10	0	11	14	15	2	s.	J. R. Ricks.
Bay St. Louis	Hancock	28	20	81.2	− 0.2	97	6	69	22	24	4.62	− 2.26	0.96	0	17	14	10	7	se.	Brother Matthew.
Bay Springs	Jasper	406	.....	81.3	.....	100	6†	66	8	30[a]	5.91	.....	1.50	0	9	14	11	6	.....	O. P. Foley.
Biloxi	Harrison	24	22	81.8	− 0.1	98	6	70	23	24[b]	8.34	+ 1.89	2.39	0	12	.....	.....	.....	se.	Miss M. Josie Pope.
Booneville	Prentiss	504	19	80.7	+ 0.9	100	6	64	8	31	3.39	− 1.21	1.75	0	10	12	18	1	s.	Dr. D. T. Price.
Brookhaven	Lincoln	500	25	81.6	0.0	99	19	68	9†	29	5.57	+ 0.08	1.59	0	14	16	3	12	se.	W. J. Bee.
Collins	Covington	.....	.....	81.6	.....	100	19	68	3	28	9.16	.....	1.95	0	13	.....	.....	.....	s.	G. P. Sledge.
Columbia	Marion	110	9	.....	.....	.....	.....	.....	.....	.....	8.75	.....	1.60	0	19	15	2	14	nw.	N. R. Drummond.
Columbus	Lowndes	191	25	82.5	+ 0.3	102	6†	65	22	33	2.73	− 2.03	0.74	0	10	19	4	8	sw.	J. B. Love.
Crystal Springs	Copiah	468	21	81.8	+ 0.8	99	6†	62	22	31	6.15	+ 0.22	2.80	0	8	20	7	4	.....	D. H. Miller.
Edinburg	Leake	.....	5	81.0	.....	99	6	62	22	35	8.12	.....	1.88	0	15	13	9	9	s.	J. Y. Blocker.
Enterprise	Clarke	248	8	.....	.....	.....	.....	.....	.....	.....	5.84	.....	1.80	0	9	.....	.....	.....	.....	J. B. Thompson.
Fulton	Itawamba	.....	4	.....	.....	.....	.....	.....	.....	.....	2.80	.....	0.91	0	7	13	16	2	w.	A. D. Graham.
Hattiesburg	Forest	189	20	81.2	− 1.0	100	19	67	3†	29	6.80	+ 0.12	2.12	0	10	17	0	14	s.	T. C. Spence.
Hazlehurst	Copiah	460	23	81.6	+ 0.1	98	19	68	9	28	7.95	+ 3.08	2.40	0	11	4	14	13	sw.	J. D. Granberry.
Hickory	Newton	326	3	.....	.....	.....	.....	.....	.....	.....	9.35	.....	2.40	0	11	16	1	14	s.	T. N. McMullen.

TABLE 1.—*Climatological data for July, 1913. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Mississippi—Contd.																				
Jackson	Hinds	280	26	82.3	+ 1.0	98	19	65	22	29	5.89	+ 1.48	1.65	0	14	12	10	9	sw.	A. S. Nall.
Lake	Scott	446	25	80.4	+ 0.5	97	6†	64	30	30	9.05	+ 3.92	2.20	0	8	18	2	11	sw.	Mrs. Eddie McNeel.
Laurel	Jones	241	9	81.8	.....	100	19	65	9	33	4.72	.....	1.32	0	12	16	8	7	se.	Thomas W. Flynt.
Leakesville	Greene	.....	19	80.8[d]	− 0.5	100	....	66	3†	29[d]	9.06	+ 1.63	2.81	0	9	....	....	....	.....	Dr. Sam Pool.
Louisville	Winston	561	24	81.0	+ 1.5	98	19	63	23	31	5.70	+ 0.83	1.20	0	10	....	....	....	.....	B. T. Webster.
McNeill	Pearl River	230	10	80.4	+ 0.1	98	6	67	7†	30	8.95	+ 0.36	2.25	0	17	4	18	9	se.	Prof. E. B. Ferris.
Macon	Noxubee	185	25	82.2	+ 0.6	101	6†	64	22	35	4.07	− 1.05	1.28	0	10	20	8	3	w.	Finis E. Carleton.
Magnolia	Pike	415	17	80.8	− 0.5	98	20	68	9†	27	5.39	− 2.19	1.25	0	13	5	19	7	e.	Miss Ruby V. Roberts.
Meridian	Lauderdale	375	23	80.6	+ 0.6	97	19	68	9	26	4.77	+ 0.27	1.79	0	11	4	13	14	sw.	U. S. Weather Bureau.
Merrill	George	76	8	.....	.....	.....	.....	.....	.....	.....	10.77	.....	3.65	0	14	14	2	15	n.	James E. Walters.
Monticello	Lawrence	209	6	81.2	.....	98	20	64	22	27	7.82	.....	1.95	0	16	11	12	8	se.	Dr. G. A. Teunisson.
Okolona	Chickasaw	311	25	81.6	− 0.6	99	6	65	22	28	6.15	+ 2.21	3.85	0	7	23	6	2	s.	E. J. Henson.
Pascagoula	Jackson	15	4	80.9	.....	97	18	70	7	21	8.71	.....	1.51	0	....	....	....	....	.....	McVey Young.
Pearlington	Hancock	10	25	80.0	− 0.9	95	7†	68	7	27	8.48	+ 1.66	1.51	0	13	8	13	10	w.	Miss Annette Koch.
Porterville	Kemper	.....	8	81.4	.....	99	19	60	8	34	8.01	.....	2.67	0	8	14	14	3	sw.	I. S. Rea.
Shubuta	Clarke	197	8	.....	.....	.....	.....	.....	.....	.....	6.94	.....	2.52	0	9	....	....	....	.....	George A. Floyd.
Tupelo	Lee	278	14	80.6	.....	97	19	62	22	30	4.62	− 0.08	2.17	0	10	15	11	5	s.	W. S. Vincent.
Waynesboro	Wayne	191	26	81.8	+ 0.9	100	20	65	9	32	7.19	+ 2.18	2.30	0	10	7	9	15	s.	R. S. Burke.
Woodland	Chickasaw	.....	4	.....	.....	.....	.....	.....	.....	.....	4.60	.....	1.15	0	9	....	....	....	.....	J. L. Ricks.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 2, South Atlantic and East Gulf States.*

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Virginia.																																	
Arvonia	James		.17			T.				T.	.32	T.	T.			.60	.19	.11		.63		.72			.18	.04						T.	2.96
Ashland	do		.08				.50				.77						.32		.48	.30		.12			.60		T.						3.17
Buchanan ‖	do				.98				.06		.04			.08			.15				1.45					.11				.26	.16		3.29
Callaville	Chowan										*	2.30				.90				2.05	.05				.06	.38	.06	T.	T.	.26			6.06
Cape Henry	Coast		.18	T.		.82	.60				1.25	.99			.01	.35		.08	2.06	1.63	.02				.04	.69	.81						9.51
Catawba	Roanoke		.78		1.46						.45	.08				.15		.06		.45					.08				.05	.25			3.81
Charlottesville	James		1.14			.10				1.65	.06		.03		.02	.10		1.5	.07	.79	.04				.58								4.73
Clarksville ‖	Roanoke										.08	.25					.40				.30						.29				.67		1.99
Columbia	James		1.60							.40	.33					.47		.17		1.05	.93				.90								5.85
Danville ‖	Roanoke			1.07	2.24	.08						T.	1.80								.74	.14				T.	.11			T.			6.18
Diamond Springs	Coast			.39			.65	.05			.65	1.66			.80		.08		.95		1.65	.03		T.		1.22	1.17						9.30
Dry Bridge	James		.27				1.08				.14		.20			.46			.26	.53	.08					.43	.07		.30	.04		.03	3.95
Hampton	Coast			.95			1.10				1.60	1.10	.25						.30		1.30	.45				.15	.25						7.45
Hot Springs	James			1.23	.12	.24			1.75				.13							.93				.65	.33	.10			1.02	.06	.10		6.66
Ivor	Chowan		1.10							1.40	2.10	.25	.70			1.85			.19	1.55					T.	.12	.10			.21			9.57
Lassiter	James					1.00						.90							.05	.20	1.02				.45							.42	4.04
Lexington	do		.75	.20		.07				T.	.71	.04	.03					.02		.96	T.		.01		.02						.31	3.12
Lynchburg	do		.01	.51	.18															.67					.10	.06							1.53
Newport News	Coast		2.06			.14	.99				2.57	.87	.34			.36			.58	2.19	.05	.02				.08	.30	.02		.27			10.84
Norfolk	do		.90			.27	.66				1.90	1.41	T.		T.	1.07		T.	.42	1.68	.01				.11	1.18	.63						10.24
Petersburg	James											.25	.07			.21					.45					1.30	.14						2.48
Randolph ‖	Roanoke				1.40							.60		.16					.17			.89				1.43							4.65
Richmond	James		T.			.65	.01				.05		.08			.36		T.	1.42	.20	.02				.17	.12	.01		T.	.56			3.65
Roanoke ‖	Roanoke		.05	1.66	.15						.55	.08	T.		T.			T.		.04				.17	.10			.12	T.			2.92
Rocky Mount	do		1.78		1.95						.34			.07																	.34	4.48
Ruckersville	James		1.12			.32					1.65		.44		.07			.07	.08	.37	.66				.10							.16	5.04
Runnymede (near)	Chowan		.08			.50					1.29	2.30				1.25		.11		.40	T.				.15	.21	.27			.12			6.68
West Point	Coast						.90			T.	T.		T.			1.24	T.		.73	.07	.09				.02	.32	.05	T.		.40			3.82
Williamsburg	James											.60				.60			.18		.35					.98	.20			.35			3.26
North Carolina.																																	
Albemarle	Pedee							.04				.32	.02		.19	.04				.02	.11	.20		.31		.77	.22	.12	.01	.04	1.20			3.61
Altapass (near)	Santee		T.	.42	.27						T.	.89	.17							.55			.08		T.	.63	T.	T.	T.		.58	.04		3.63
Beaufort	Coast							.65					.15			.43	.56			.07	.15	.60				.05	.37	1.85				.46		5.34
Belhaven	Pungo				.10			.47				.10				.26								2.50			2.00			.40		.49	6.32
Brewers	Pedee		T.		.25	T.						.30	.07		T.	T.		T.		.43	.01		.06	.04	.01	.04		T.	.50	.01	.11	.04	1.87
Caroleen	Santee					.68						.13	.22								.01			.68		.27		1.42	.15				3.56
Chalybeate Springs	Cape Fear			.05	.06	.08	T.					.03						.22		.42	1.36	.01				.91	1.69	.01		.04	2.02			6.90
Chapel Hill	do				T.							.20						.04		.38	.10			T.		.22	.07			.99		.05	2.05
Charlotte	Santee				2.36							.18	T.	T.		T.	.13			T.	.20	.03	T.	.17	.28	T.	.07	.57	.14	.29		T.	4.42
Chimney Rock	do				.80								.20							.02	.10		2.32	1.00			.25	.30					4.99
Durham (near)	Neuse																		.48	.30				.18			.05	.04			.72	.48	2.25
Eagletown	Chowan		.24			.50	.56					2.35				.50				1.13	.14	.06		T.		1.15	1.35	T.		.13		.44	8.55
Edenton	Coast			.50												.70				.40	.30			.32			1.91			.05		.55	4.73
Elizabeth City	Pasquotank											1.35	.95			.25				.60	T.					.55	1.10			.65		.80	6.25
Elizabethtown ‖	Cape Fear				.37								.18						1.44			2.30	1.80						.12		.80		7.01
Elkin ‖	Pedee				.10								.11			.35				.70						.40				.10			1.76
Enfield (near) ‖	Tar				.34		.40					.14			.59					2.00	.31						.80	.10			.30			4.98
Fayetteville ‖	Cape Fear				T.								.07				.06			1.64	.52					1.28	1.25	.05			.05			4.92
Globe (near)	Santee		.35		.45							.79											.10	.17	.13	.21		.72			.25			3.17
Goldsboro ‖	Neuse				.34	.03							.50			.12			.61	1.00	.67				.24	T.	3.94	.20	.68		.66			8.99
Gorge (near)	Santee	.15	.02								T.	.35	.03							.12			.11		.44	.11		.21	.04		.74			2.32
Graham ‖	Cape Fear					.54						.25	.07					.25			.10	.25			T.	.26	.04				.35	.26		2.40
Greensboro ‖	do				.15	.08						.29	.26								.11	.13								.05		.42	1.60	3.09
Greenville ‖	Tar				.01								.37			.02	.50		.08		1.20	.32					.80	.10	.06		.07			3.53
Hatteras	Coast						.04	.01								.16				.20	.25	.19		.07		.98	1.64	T.				.24	3.78
Henderson	Tar and Roanoke.			T.	.10						.86	T.				.57				.32	.08					.50	.08			.41			2.92
Hickory	Santee			T.	.64	T.											.22			.62					T.				.06	T.		.14	1.91
Kings Mountain	do				.42							.10				.23		.12			.08		.05	.09		.32	.09			.60				2.10
Kinston	Neuse			1.02								.46				.60				1.15	1.17	.72		T.		.35	2.25	1.14	.08					8.94
Lincolnton	Santee			.35											.22	.42								.55		.20			.20			.13	2.07
Louisburg ‖	Tar				.83		.17	.05				.21					.69				1.73	.26				.35	.21				.59			5.09
Lumberton ‖	Lumber					.11							.29					.03	.03		1.55	1.76		.09			1.30	.02		.01	.44			5.63
Manteo	Coast			.34			.04	.06								.68				.04	.24	.70		.02			1.10							3.22
Marion	Santee	.21		.03	1.20							.23	.11		.23	.08							1.55	.13	.04	.34	.07	.03	T.	T.	.42	T.		4.67
Middletown	Coast															1.00	.25				.44	1.07				.36	.57							3.69
Moncure ‖	Cape Fear				.20	.09							.12					.19				.23	2.78			.25	.24							4.10
Monroe	Pedee				T.							.48				T.	.07	.07		.11		.27		.27		2.32			.20		1.43		5.22
Morganton	Santee			T.		.14							.02				.14				.01		.16	.45	.08	.44	.01							1.45
Mount Airy	Pedee	.18			1.37							.17			.08	T.				.87			.16			T.			80	1.55		1.15	6.33
Mount Holly ‖	Santee				.06	1.06						T.	.28			.26	.16			.06				T.	.08				10		.04	1.10		3.20
Nashville ‖	Tar			2.80		T.							.70				.70	T.			2.95	.30		T.		.22	.55	08			.95			9.26
Neuse ‖	Neuse				.05								.13				.27				.16	.36				.40	.85	07		.07	2.92			5.20
Newbern ‖	do	T.				.23		.28					.95				.40		.03		3.25	1.00	.08		.07		.81	96	2.46		.08			10.60
North Wilkesboro (near).	Pedee				.56						.70									.04	T.				.16			1.07		.10			2.63
Parkersburg	Cape Fear			.10	T.							.10			.10			.15		1.80	1.50				T.	.90	.40		T.	.15	T.			5.20
Pinehurst	Lumber				.05		.30					.01								1.50	2.15	.02				.70	1.95			.10	.10			6.88
Pittsboro	Cape Fear			.80	.20													.30		1.30	1.20				.40	.17							4.35
Raleigh	Neuse			.93	.04							.36				.05		T.		.13	1.27	.01		.06	.24	.80	.09	T.	T.	1.49		T.	5.51
Ramseur	Cape Fear				1.27							.06	.01							.33	.90	.12		.05		.02				.35	.05			3.16
Randleman ‖	do				.46	.15							.90							.50		2.20			.15		.35	.07		.50	.23			5.47
Reidsville ‖	do			.31	2.70	.12						.05	1.02						.12		.10	.03				.37	.19				.13	.67		5.81
Rock House	Savannah			.30	.59	.19					T.	.84	1.05			.05				1.35	.05	.20	.09	.35	.11	.06	.63	.26	.46	.27	T.			6.85
Rockingham	Pedee			.38	.58		.05				.10	.05			.15	.10	.35			.25	1.72				.08	1.95	.45			1.00		.04		7.25
Rocky Mount ‖	Tar				.90												.58				2.60	.30				.10	.20	.10						4.78
Salisbury ‖	Pedee			.22	.99	.30															.20	1.42		.05		.34					.63	.15		4.30
Saxon	Roanoke				.66							.78			.66					.22						.50				.49				3.31
Scotland Neck	Tar					.18	.02					.73				.70				.50	.35	.17				.13	.67	.93			.06	.07	.08		4.79
Settle	Pedee			.83	.21	.75					.35	1.68	T.	T.						.33	.60				T.	T.			T.		T.	.80	1.13	6.68
Sloan	Cape Fear			2.59			1.25					.35				.39		.20		.93		2.13		.04		.89	.49	.83						10.09
Smithfield ‖	Neuse				.61								.12			.02	.06				.43	2.40		.01	T.	.95				.29			4.89
Southport	Cape Fear				T.			T.								.49			.13			4.02	.27	T.			.02	.65				.46	6.04
Statesville	Pedee				1.11										.11		.51			.50	.48		.32						28				3.31
Tarboro ‖	Tar				1.15			.20					.03				.58				2.68	.29				.07	.17	.03			.13	.08		5.41
Tryon (near)	Santee				.87							.05	.03									.75	.70	1.08	.06	.31	.65	.35	1.14					5.99
Weldon ‖	Roanoke						.38					.63	.26			T.	.31		.03	T.	1.20	.15			T.	1.30	.15	.02			.14			4.66
Willard	Cape Fear			.71	T.							.51				.52			.55		1.49	1.38		.22		1.66	.99	.05		T.				8.08
Wilmington	do				.03			T.				.16			T.	1.27			.01	T.	1.34	1.19	.07	.19		.01	.97	.35		.01		.33		5.93
Winston-Salem ‖	Pedee				1.40	.25							.42								.58	.12				.17	.03		.05		1.73	.26		5.01

TABLE 2.—*Daily precipitation for July, 1913. District No. 2*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
South Carolina.																																	
Aiken	Edisto										1.15											1.00		.35				.60				3.10
Allendale	Savannah				.20						.10											.22	.10	.20		1.10	.20	.03				2.25
	do					.04	.15					.07	1.56	.10		.50					.10	.16		.15			1.65	.90		.02		.76	6.16
Anderson	Edisto																.52				.84	.05		.28					.19	.22	T.		2.10
Batesburg	Coast												.17						1.53		3.35	1.52						1.55		1.69			9.81
Beaufort	Edisto										3.40						T.				.88			.48		.19	.07	.04	.10				5.34
Blackville	Broad						.15	.03													.79	.25		.37				.30	.08		.15		2.38
Blairs	Edisto											T.	.44								2.15	.59	.20		.17		.82	.41	.08		.14	.11	5.25
Bowman	Salkehatchie												.10					.38		.60	.25	.16	.10			.90	.10	.50		.90			3.61
Broxton	Savannah				.72												.47				1.50	.03						.97		.13	.09		3.91
Calhoun Falls	Savannah					.05		.12					.02					.02			3.74	1.23		.20			1.45	.40	.08		.09		7.40
Camden	Wateree					.30							.52				.63				.17	T.		T.		.05	.08				1.85		3.60
Catawba	Catawba																				.59	.90								.53	.14		2.16
Chappells	Saluda						.16					.02	T.			1.01		.23			1.00	2.73	T.	T.	T.		T.	.02			.34	T.	5.51
Charleston	Coast												.05			.02	.01	.08			1.24	1.66		.01			2.08	.66	1.04		.05		6.95
Cheraw	Pedee				.03	.02						.85				.20				T.	.30			.70	.20	.30	.60			.30			4.45
Clemson College	Savannah				1.00							.05				.53	T.		2.61		.27		1.51	.04		.22	.15	.28	T.		.14	.01	5.82
Columbia	Congaree				T.	.01											1.15	.50	T.			.55	1.70	T.					25	1.10		.11		5.48
Conway	Waccamaw							.12									23	.46			1.80						1.20	1.05					6.67
Darlington	Pedee					1.77							.16					.42		T.	2.66		T.			.30	.85	.09	.02	.22	.75	.34	9.68
Dillon	Little Pedee				3.00			.72				.25				.06		.15	.19		2.20		1.86			.51	.20	.25					5.19
Edisto	Edisto	.18											.15					T.	T.		.40	.65		T.			T.				T.		1.15
Effingham	Lynches					.10															.40		.45	.10	.07	.12		.10					2.12
Ferguson	Santee					.20						T.	.15				.20		.33		.40												
Florence	Pedee	.04				.29		T.					.06				.12	.10			2.26	.17		T.			.88	.12	T.		2.06		6.10
Gaston Shoals	Broad				T.	T.						.08	.25	.10			.05		.02	T.		.35		.10	.19	.33	T.	.03	.02	.01	.03		1.56
Georgetown	Coast							1.65								1.15					.15	.25		.15		.25		.05	T.		2.10		5.75
Greenville	Saluda				T.	1.23	.10					.36	.66				.34				T.	.35		1.25	.56	.50	.36		.01	.02		.86	6.60
Greenwood	do				.21																.90	.37	.05	.06			1.47	.78					3.84
Heath Springs	Wateree			.95	.40							.10				.10			1.04		.21			.04		.42	.80	.05	1.25			1.65	7.01
Kingstree	Black					.20							.07				.08		.68		.30		.45	.12			.57			.57	.60		3.64
Liberty	Savannah				1.22	.10						.80	.40			.25				.10			2.10	T.	.25	.55	.02	.15	T.		.25		6.19
Little Mountain	Saluda											.26								1.10	2.25	.60										1.17	5.38
Meriwether	Savannah			T.		.57							T.			.21		.30		.17	.02		.23	.03			1.71				T.		3.24
Monetta	Edisto												T.			.38					.46		.43	.01				.02	.47	.54	.01	T.	2.32
Newberry	Saluda					.01					.05	.13	T.							.33	.70	.08	.87	.05			1.49		T.		.12		3.83
Pelzer	do					1.20	.56					.02	.62	.10								T.		T.		T.	2.06	.30	.30		.86	.52	6.34
Pinopolis	Cooper															.24		.12			.05	1.20	.15		42	1.00	.26			.40		3.84
St. George	Edisto						.10														.70		.35	.20	.10	.26	.05	.85				2.61
St. Matthews	Santee				.05			.44				.35					.51				1.50			.20	.05	.20	.75	.23	.30				4.58
Saluda	Saluda										.51	.05	.13			.21				.20	.15		.05				.46	.06	1.04	.03	.20		2.09
Santuc	Broad			T.		.20						.57	T.				.16	T.		.39	.34	.09	.10	.38		.07	.10		.64		1.30		4.34
Smith Mills	Pedee					1.15	2.10					T.		.13			T.	.08	.26		T.	.28	.72	T.	.10		.08	.60	.20	.33	3.10		9.13
Society Hill	do					1.25							.15						2.00		.75					3.75	.20			.15			8.25
Spartanburg	Broad			.56	.28							1.47	.32	.10			.20	.08	1.32	T.	.13	.31		.71	.04	.54	.04	.56	.15		.15		6.96
Summerville	Ashley											.03		T.		.77		.03			.09		.02	.15	.02	.08	T.	.05	.27	T.	.22		1.79
Sumter	Black			T.	T.										T.	.02		T.		2.01			.04	.02	T.	.05	.04	1.06	T.		T.	.07	3.31
Trenton	Edisto			T.									T.		.80	1.24		T.			.22		.11		T.		.15	.56	.06			.22	3.36
Winnsboro	Broad				1.53							1.67			T.					1.40	.90		T.	T.		T.	.25			T.			5.75
Winthrop College	Catawba				1.87										.50	.55							.15			.52	.10			2.00			5.69
Yemassee	Combahee	.56										.87			.39			.06	.30		.47			.23	.45	.45	T.	.03	T.		.06	1.02	.31	5.20
Georgia.																																	
Abbeville	Ocmulgee	1.30			.94		.16				.04	.12		.04	.06	T.			.02		T.	1.00	4.63	.96	T.	.95	.15	.17	.04	1.85			12.43
Adairsville	Coosa										T.	.40				.90								.18		1.16							2.64
Albany	Flint	2.00	.09		.20	.52					1.06	.37	T.				.08				.20	.76	.42	.14	.70	1.70	.45	.02	.30	T.		9.01
Allapaha	Allapaha	.51						.27			.61				.10						.10	1.98	.59	.61	.01	.05	2.40	.27	.89			8.39
Americus	Flint					.18		.20				.35			.11						.25	.70	1.46	.62	.30		.24	.08		.60			5.09
Athens	Oconee					.45						.10	.23	.30								.14		.03	.19	.25		.91	.30		.26	.42	3.58
Atlanta	Chat'ho'chee	.03			.57	T.					.39	.16	.28	T.		.50					.06	.26	.76	.12	.09	.02	.51	.11		.02	.02	.95	4.85
Augusta	Savannah										.72	T.	T.		T.	T.		T.			.21	T.	.36	.22	T.	.14	1.28	.96	.25			1.34	5.48
Bainbridge	Flint	.70	.20		.27		.12	.22				T.				.18		.12		.35		1.03	.20	.70	T.	.10	.09	.30	1.30	.65	.02		6.55
Barnesville	do			.20	1.25						1.53		.25	.09							.49		.25	1.00	.43		.10	.03		.67			6.29
Butler	do				1.63							.41									.42	.15	1.32	.80			.60	.36		.71			6.40
Camak	Savannah													.09			1.37					.10		.11				.84		.43		.13	3.07
Canton	Coosa			.15			1.75					T.	.50	.08			.53									.54	2.40	.20	1.65	.75			T.	8.55
Carlton	Savannah																											1.89			12	.82	4.39
Clayton	do				.84							1.86	.55			T.						1.57	.07		.26	3.12	.38	1.01	.16	T.	T.	T.	9.82
Columbus	Chat'ho'chee	.17				.48	T.					1.90	T.	.10	.12	T.			.07		.15		.07	.13	.54	.32	T.	.08	.41	.14	1.80		6.48
Concord	Flint			3.25	.26						1.68		.26	.45							.34	1.90	.84	.31	.21	1.15	.01	.08	.40				11.14
Covington	Ocmulgee	.60				.95				.05					.70						1.00	.70		.80			20	1.10		.05			6.15
Diamond	Tennessee				.02						T.	.90	.30			.05					.03				11	T.	.35	T.			1.92		3.68
Dublin	Oconee					.10	.03					.02		T.	.53							T.	.73	.65	.10	.24	1.04	1.90	.48			.08	5.90
Eastman	Ocmulgee				T.						12			T.	T.						T.	.16	.39	.38	.37	.40		.11	.08	.63			2.64
Eatonton	Oconee				1.56	.81					.05		.40										.03	.49	.35		.79			.33			4.81
Elberton	Savannah			1.40	.24								.10								.35	.60		.15			1.00				1.40		5.24
Experiment	Ocmulgee					.22							.87	.22							.18	.22	1.48	.71	.30	.07							4.27
Fort Gaines	Chat'ho'chee	.15				.20						.38				T.					.20	.15	.95		.85	.73		.21	.40	.25	T.		4.47
Gainesville	do					.65						.05	.60	.20			.88					.32	.15	.18	.05	.82		1.78				.72	6.40
Gillsville	Savannah						.17					.58	.35	.68								2.20				.72		1.08		.05			5.83
Glennville	Altamaha	.28			.73		.10	.23				.24		.13	.22	.72		.44	.03			.31	1.26	1.42	.19	.28	.30	T.		.04		T.	6.92
Gore	Coosa			1.25		.03					.12	.30	.17								.15				.02	.80	.76	.35	.20		.10		4.25
Greensboro	Oconee					T.						T.		.36			.57					.17	1.94	.09		.83		.60		.18			4.74
Griffin	Ocmulgee					.45						.50	.02	.28	.90							.07	.40	1.20	.20	.54		.35	.37					5.28
Harrison	Ogeechee									.74												1.39	.14	.27	.90	.55	.95						4.94
Hawkinsville	Ocmulgee				.06			1.00			1.04		.17								.16		.51	.75	.08	.16	.12		.20				4.25
Highland Dam	Chat'ho'chee					.26						.80			.11				.05		.80			.11	.42	.23		.05	.22	.15	2.25		5.45
Jesup	Altamaha						.08			.10	1.10			.14									1.65	.85	.45	1.90	T.	.10	.35	T.			6.75
Lisbon	Savannah				.31	.10						.03				.06				.62	2.25	.05		.40		.08	.26	.02	.15	.04	.02		4.39
Lost Mountain	Chat'ho'chee										10	1.45										.63	.45			.60	1.00				.10	.05	4.38
Louisville	Ogeechee			.48							.96											.56	1.49	.07	.18	.40	1.29	.14	.49		.05	.49	6.60
Lumber City	Ocmulgee		.05									.28						.01		.04		1.10	.50	.65	.02	.21	1.23			.65			4.74
Lumpkin	Chat'ho'chee				1.52		.20								.12					.63	1.10	.12	.46	.32	.10	.22	.05			.02			4.86
Macon	Ocmulgee				2.16	.01				.02	.02											.95	1.30	.64	.20	.09	.13	.05	.09		.90		6.56
Marshallville	Flint	.18	T.		T.						T.	.06		1.05							T.	T.	2.07	.75	.87	.03	.19		.50	.95			6.65
Milledgeville	Oconee				.15	.26						1.50		.12	.38				.19				.12	.62	.40	.35	.07	.43	.57	.83		.10	6.09
Millen	Ogeechee	.67																.01				.61	.80	.20	.45		.25		.10	T.		.15	3.24
Mineral Bluff	Tennessee	.42											.40													1.30			.05	.40	.09	.42	3.08
Montezuma	Flint	.06	.05									.60									.05	.03	.59	1.25	.30		1.43		.12	1.41			5.89
Monticello	Ocmulgee				.50	1.12	.02					.50		.35	.03		.05			.57	.63	.57	1.25	.67	.16	.22	.20	.02	.02	.09			6.97
Newnan	Chat'ho'chee	.65				1.00						.09	.13	1.09	1.15		.58							.77	.30	.50	.03	1.00	.40		.70		8.39
Norcross	do	.04				.02						.40	.32	.58							.36	.02	.78	.02		.38	.66	.54	.04	.12	.24	1.34	5.46
Point Peter	Savannah												.20							.25	1.75	.50		.15	.07		.22			.60		3.74

TABLE 2.—*Daily precipitation for July, 1913. District No. 2*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Georgia—Contd.																																	
Poulan	Suwanee			.06							.75					.95						1.33	.90		.37	.78			.35	.33			5.82
Putnam	Flint			.37	.10									.33	.16							.10	.15	.32	.72	.10			.40	1.00		.22		3.97
Quitman ‖	Suwanee				.41			.90				.52									20			.46	.75		.13	.40			.70			4.47
Ramhurst	Coosa				.05						T.	1.10	.87									.10					.31	.06	.39	.55		.02			3.45
Resaca ‖	....do					1.07						.70	.08													.27	.25		.06	2.34	.70				5.47
Rome ‖	....do		T.				.02					.08	.02				.20									T.	1.93	.50	.32		.35	T.			3.42
St. George ‖	St. Marys	.33		1.23	T.		.68			.18	.48	T.				1.85	.04	.19				.16	.54	.07		.58	.60		1.00				.84		8.77
Savannah	Savannah					.15	.09	T.			.08	.35		T.	.04	.18		.86			T.	1.77	1.93	T.	.05	.02		.77	T.		T.	.24		6.53
Statesboro	Ogeechee			T.		.59	T.				.11		T.	T.			T.	T.			T.	2.45	.43	T.	.41	.15	.20	.06	.02		.19			4.61
Talbotton	Chat'ho'chee				.20						.40		.10			.02							2.15	.33	.06	.05	.08	.07	.43	.25			.13		4.27
Tallapoosa ‖	Tallapoosa					.57						.29	.27	T.			T.				T.	.35			.26	.52	.40	T.	.85		.05	.03		3.89
Thomasville	Ocklocknee	.50		.87			T.				.03			T.					.01			.37	.11	.33	T.	.12	.06		1.92	.02	.44			4.78
Toccoa ‖	Savannah					T.						T.	.62	.11		T.						.95		.45		1.00	.07	.09	.67				1.21		5.17
Valdosta ‖	Suwanee	.25	.35			T.		.80			.15	.30											.60	1.15		.35		1.20		1.20		T.		6.35
Valona	Coast						.50	1.00	.10						.08							2.10	2.73	.74		1.80								9.05
Washington ‖	Savannah					.60						.44	.04	.30							.08	.18	.03	1.53		.32	.05	.22			.20	.10		4.09
Waycross ‖	Satilla	1.06						.83						.14				.03	.05				.43	2.10	.34	.32	1.70	1.81		.03		.07		8.91
Waynesboro ‖	Savannah				T.							T.						.32					1.15	.50	.10		T.		.44	.23		.32		3.06
West Point ‖	Chat'ho'chee					.24						.40	.03	.62	.09						.42			.48	.10	.33	.11	.01	.15	.07	.62			3.67
Woodbury ‖	Flint	.13			2.40	.33						1.53		.16	.10		.07					3.25		.45	.37	.27	.47			.52				10.05
Florida.																																	
Apalachicola	Coast	.01					.25				.10				.10				1.90				.85			.32			.04	T.		.52		4.09
Arcadia	Peace Creek	.27	.36	.01	.11	.27	.17	1.50	.04		.02	.42	.02	1.08	.06	.38		.15	.08	.03					.10	1.00	.03		.02		.10		6.22
Avon Park	Kissimmee		.08	.16	.22		.27		.21	1.26					.18	.45		.74	1.81		.05			.33					T.	.23	.76		7.47
Bartow ‖	Peace Creek	.07	.01	.27	.57		.10	1.27		.20	1.51		.22		.15		.07		.03	.09		.01		.75			.03			.01	.05	.40		5.81
Bassenger	Kissimmee	1.55					T.			.45		T.		1.10	T.			T.			.40			T.						.10			3.60
Bradentown	Manatee	.11		1.20	.22			1.55	T.					.13		.25			.11					1.08	1.40	.03	.05		.53	.28	.33		7.27
Bristol	Apalachicola					.45				.76	.40					.40			.45			.42		.45	.52	.51	.56	.34	.35	.26	.27	.25	6.39
Brooksville (1)	Withlac'chee	.20		.14	.58	.42	.58				.36								1.00					.12		.85			.20		2.50	.75	7.70
Brooksville (2)	....do		T.	1.03		.05	.03	.60	.03	.13	.06	T.		.13		2.85	.85	.43	T.	.05	.03	1.10	.16	.40	1.15	.01	.05	.60	T.	.95	.55	11.24
Carrabelle	Coast									.75	.10						.05	.15		1.60		.15	.80							1.90			5.50
Cedar Keys	....do							1.23	1.04											.50	.12	.52				.30	.29	1.24				.83		6.07
Clermont	Lake		T.	T.			.62		.10	2.00				.50		.45	T.			.62		.45							T.				4.74
Crescent City	St. Johns	.05		.05		.06	.15	.71	.18	.07		.15		.13			.07		.40			.23	1.22	.30	.03	T.	T.		.46	.16			4.42
De Funiak Springs	Chocta'chee	.48	.16		.15	.41					.79		.01	.77	.17					.48		.29	.95		.59	1.50	.96		.46			.01		8.18
De Land	St. Johns	.05				.24	.45			.19			.57	.60								.03	.10						.66					2.89
Eustis ‖	Lake	.12	.53	.37			1.09	.07		.23		.20		.16					.41		.07							.09			.16			3.50
Federal Point	St. Johns	.02		.10		.02	.41	.02	.10	.05		.20							.60		.02	.14	.02		.30	.05	.15	.33			.57			3.30
Felismere ‖	Sebastian					T.	.90	.09	T.	1.22			.02				.20	.04		.07	T.					.04	.22				.30	.21		3.11
Fenholloway	Fenholloway							1.14	.16									1.07	1.26				1.00				2.00		.12		.38		7.13
Fernandina	Coast								.10		.50						.95					.10	1.12	.01	.01	.14	.24						3.17
Fort Lauderdale ‖	New	.62						.33	.66	.15	T.					.02	T.					.22		.25	.08		.04	.25		T.				2.62
Fort Meade	Peace Creek	.05	T.	T.	.30	.42	.10			.87		.30		.85	.40			1.73	T.			.36	1.95	.11	.58	.10	T.		.11	.01	.02			8.26
Fort Myers ‖	Caloosa'chee		.05		.06	.43	.23	.22	.09		.02	.24		2.75	.03	.10	.03	.02				.04		T.		1.19	.17				.05	1.37		7.09
Fort Pierce	Indian						.01			.45			.08								.04	.39			.08					.04				1.09
Gainesville ‖	Lake		.04	.36	.60		.10	2.70	.04	.02	.02		1.31					.40	.35	1.02		1.04	.02	.55		.45			.02	.35				9.39
Garniers (near)	Coast	.04	.18		.53					.01	.10	.08	.05	.11		T.		.40	T.	.20		.29	.77	.15	1.22	.47	.04	T.	T.	.40				5.04
Grasmere	Lake	.01		.55	.41		.39	.65		.80	.12	.21		.02			1.20	.28	.63					.14		.07			1.10					6.58
Griffin	New						.11	.15			.40			.15		.76				.20	.80			.05			.53			.11			3.26
Hilliard	Nassau			.95			.22	.16			.61		.18				1.05	1.63				.10	.12	.15		.12	.13		1.35					6.77
Homestead	Coast		.17				.86	.03							.04	1.06	.04	.06				.04		1.06					.06	.08	.10			3.60
Hypoluxo	Lake									2.20	.11	.31				.10				.26		.50	.02										3.50
Inverness ‖	Withla'chee		.28	.05			.70			.40							.11	.06	1.80	.45		.15			.24		.55			1.00			5.79
Jacksonville	St. Johns	T.	T.	.01	T.	T.	.29	.15		T.	T.	T.	.13	2.15			.01	.02	.01		.38	.65	.05	.60			.06	T.	1.64			.13		6.28
Jasper	Suwanee	1.15		.25	.45		.36			.89	.35								T.		.87	.30	.25					1.35		T.			6.22
Johnstown	....do		.21			.33	.76	.09	1.17	.51		.58	.05			1.09			1.69		.54	.16	.08	.10	.83	.03	1.83		1.54					11.59
Key West	Coast						.24	.03	.19			.26			T.			.12	T.	T.				.03		T.	.02			.06	.05	T.		1.00
Kissimmee	Kissimmee			.14	.16	T.	.19	.21	T.	.13			.60	.10					.98	.05			T.	.65		T.		.12			.35			3.68
Lake City ‖	Suwanee	T.			.06	T.		.45	.96	.60	.46	.17		.04	2.35			.80	T.	.21		.27	.08	.14	.12	.07	.08	.76	.52	.62		.12		8.88
Live Oak	....do	.12		.57	.11	1.07				2.40	1.05		.02		.01	.04	.01	.03	.31			.48	.18	.01			.22		.55					7.18
Lock No. 1	North New River Canal						.65	.72		.55		.25		.25												T.	.35		.05	.35				3.17
Lucerne Park	Peace Creek			1.06		.60	.30		T.	1.20			.06	.09		.08			T.	.10	.01			.51	.05						.20			4.26
Macclenny	St. Marys					.75		.89	.84	.05	.15	.05	.04				.58	.16		.12	.09	.04		.11		.13								4.00
Madison ‖	Suwanee	.14	.57		.98	.04		1.10	T.		.49	.04			.02	.01		.11		.05		.13	.73	.17	1.09	.09	T.			.16		.12		6.04
Malabar	Indian						.06		.06				.02								.12														0.26
Marianna ‖	Apalachicola	.26	.40		1.15	1.33						.03		.03		.25		.05		.02	.01	.32	.51	1.05	.05		.60			.06				6.12
Merritts Island	Indian												T.								.04		T.											1.63
Miami (1)	Coast	T.					.56	T.	.40			.44			.27	.07			.30		.03	.01		.25		T.			.17	.48		T.		2.98
Miami (2)	....do						.35		2.05		.03		.50			.35			1.43		.05	.10			.33		.06		16		.71			6.12
Middleburg	St. Johns			.10				2.00									.13	.07				.37	.31	1.00		.16	.80		27					5.21
Molino	Escambia		.85		.83	.45	T.									.45	T.				2.70		1.65	.82	.33	1.15		.35						9.58
Mount Pleasant	Apalachicola						.05					.10			.06		T.			.61	1.52	1.35	1.10	.40	.12	.15	1.22			.70				7.38
New Smyrna ‖	Coast	.37						.31															30	.32										1.30
Orange City	St. Johns	.05				.44	.89			.25				.38					T.			.18	.58			.04			.38					3.19
Orlando	....do	2.41					1.56	.15		T.	.34	T.		1.55			.10		1.78		.25	.03	.30	1.83			.05				.18			10.53
Pensacola	Coast	.49	.06		.10	1.13					.04	.02				T.	T.	.07		.09		.29	3.08	.35	.07	1.21	T.	.02	.09	.85				7.96
Pinellas Park	....do		.11	.12	.83	.36		.60		.28		.50		.13	.10	.30	.06		.56		.09			.43	.90	1.12					.14	1.22		7.85
Plant City	Hillsboro	.05		.45			.28	.08	.45	1.20			.40				.14		.05				12									.70		3.92
Ritta	Caloosa'chee	.03						.07	.05	.77	.13					.18	.02					.08	.02	.08		.08	.10	.03			.08	.40		2.12
Rockwell	Withla'chee			.65			1.10		.20	.80		.12							1.25		.60					1.20			2.00		.25		8.17
St. Augustine	Coast							.10	.80												.90	.55							10				2.45
St. Cloud	Kissimmee			.39		T.	.55	T.	.31	.61		.08	T.	.46		T.	.22		1.25			.05	.41	.03		.06	T.	.65			.21			5.28
St. Leo	Withla'chee	.05	.30	.02			.07	.44	T.	.18	.04	.18		.16			.02		2.17		.05	T.			.85	.53							5.06
Sand Key	Coast						1.15	.08	.37			.01				T.	.11	.01	T.							T.	.02			.01		.19		1.95
Sanford ‖	St. Johns	.16			.10		1.12			.16			.03	1.96					.60			.26	1.70			.18								6.27
Satsuma Heights	....do			.42			.98	.12	T.	1.55		.21					T.	.26	.65		.07	.06		.51		T.	.10		.73					5.66
Switzerland	....do		.92	.41			1.04	1.72	.21								.21							.65		.11	.35							5.62
Tallahassee ‖	Ocklocknee		.12	T.	.30			T.				1.20		.10					T.	T.			30	.45	.05	T.	T.	.30		.18	.20	.77		3.97
Tampa	Coast	T.		.87	T.	.12	.28	.01	.29	.15		.26	.10	.05	.03	.12	1.54	T.	.57		.30	.10			1.04	.92			.06	.20	T.			7.01
Tarpon Springs	....do				.41	.30		.45	.04	.55		.20		T.					.08		.04	.21		.33	.24	.05	.50	.12	.10		.35	.03		4.00
Titusville	Indian						.54	.02		.30	.72		.05	.07	.28						1.76	.04	.03	.05	.01										3.87
Wausau	Chocta'chee										.20	.20	T.		T.		.05					.40				1.40	2.00			2.03	1.01			7.29
Zona	New					.17	.17	.17	.24	.86			.05		.03	.13											.04			.07	.45				2.42
Alabama.																																	
Alaga ‖	Chattahoochee	T.	T.		.86	T.	.61	.23				.22				.78		.83			.26		.31	.42		.61	.37	T.		T.	.34			5.84
Anniston	Coosa	.87				T.					.25	.20	.01	.91		.01				.13	.78		T.	.26	.03	.03	T.		.02	.60	.02			4.12
Ashville	....do	.56	.09								T.	.47	T.			.43							.81	.05	.73	T.	.20		T.					3.34
Auburn	Tallapoosa				.01	T.					.07	.06	.28	.51				T.	.70	.04			.91	1.01	.13	.01	.38	.65	.48	.16		.55			5.95

TABLE 2.—*Daily precipitation for July, 1913. District No. 2*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Alabama—Contd.																																	
Benton ‖	Alabama											.07	.48		.94					.34		.82	1.44				.72	.12		.14		1.40		6.47
Bermuda	Escambia	.20			.80	.01	.16				.93	.08		.43		.04	.01	T.		.02	.06	.12	.04	.54	.91	.23	.37	T.	.07	T.	T.		5.02
Birmingham	Black Warrior.					T.					T.	.19	.12	.72	.41	.07				.05			.62	.60	.02	.92	T.	.01	.01	.98	T.	T.	4.72
Calera	Coosa					.08						.42	.30	1.10	.40						.70	.52			.52	.10	.28			.03	.62		5.07
Camp Hill	Tallapoosa					.10						.20	.40	1.30								.50	.40	.41	.70					.48			4.49
Citronelle	Alabama			.02	1.46	.16	.44			.45		.87		.01								.31	.02	.17	.08	.37	.09	.62	.30	.32			5.69
Clanton ‖	Coosa		.02	.28									.09	1.04	.21							1.43		.22	1.11	1.05	.60			.11	.80		7.10
Cochrane	Tombigbee		.35	.40									.29	.33							.14				.45	1.15	.32				.58		3.87
Cordova	Black Warrior.	1.30											.25			.65									.92	.57	.67				.65		5.01
Cullman	do									.10	.20	1.00	.04	.35										.20	.10	.75		T.	.90	.10	.14	T.	3.88
Dadeville ‖	Tallapoosa					T.							.20	.47	.37				T.		.32		.47	.44	.20	.24	.79	T.			.46		4.02
Daphne	Coast				.20	1.10		.10			.35	.97	T.			T.		T.		1.80		.50	.92	.28	.27	.17	.45			.12			7.23
Demopolis ‖	Tombigbee	.03					.02					1.76	.30	.50								.40			.85	1.05	.09	.52	.22	.40	1.29		7.43
Dothan	Coast		.38		.06	.62	.14				.13	.04		T.		T.	T.				.33	.74	1.67	.04	.63	.05	.24	.01	.46	.22	.02		5.18
Eufaula ‖	Chattahoochee.	.62				1.30	T.				.22	.04			.38	T.					.60	.50	.94	.16	.04	.08	.36	.34		.16	.04		5.78
Evergreen ‖	Escambia							.14								.80								.32	.04	.25	.35	.40	.21				2.51
Fort Deposit	do	.02	T.	T.		2.58		.32				.58	.05		.33				T.				1.20				.18		1.00	T.			6.26
Gadsden ‖	Coosa		.04									.12	.60	1.00											.16	.02	.78	1.08		.48	.04	.04	4.36
Goat Rock	Chattahoochee.					.25						T.	.04	.11	.12						.23	.14		.23	1.07	.15		.05	1.43	.35	.03		4.20
Goodwater ‖	Coosa	.40	.02				.01					.10	1.74	.75	.65		.03					1.26		1.40	1.29	.20	.87	.01		.09			8.82
Greensboro ‖	Black Warrior.					.35	.03					.53	.11	.52	.29						.81				.95	.80	.90	.21		.23	1.18			6.91
Greenville ‖	Escambia			.12				.59				.19			.38										.52				.63				3.07
Hamilton	Tombigbee	.42											.50										.64										3.32
Healing Springs	do	T.	T.		T.	.15	.12				.61	.28									.53		.08	.21	.30	1.11	.04	.33				.42	2.33
Highland Home	Escambia				2.17						.17	.20	.14						.12					.09	.03	.03	.11	T.	T.				2.25
Livingston ‖	Tombigbee	.27	.84	T.		.36						.30	1.15							1.55		1.50	.15	.38	.28	T.	.11	.33	.05	1.25			8.40
Lock No. 4	Coosa	.08									.52	.58		1.10											2.50	1.42			.11		1.85		8.80
Maple Grove ‖	do					T.					.25	.75	T.			T.				.20		T.		.90	.30	.04	.24	.44	1.00		.05			5.45
Mentone ‖	do					.17						T.	1.00											.30	T.	.60	.06		T.	.30	.09		2.35
Milstead ‖	Tallapoosa					.30							.10		.10	.10					.42	1.05	.45	1.12	.10	.22	.12		.20		.14		3.46
Mobile	Coast	.10	.02		T.	.02	.19				.12	.03				T.	.24	.27		.02	.15	.29	1.00	.64	.06	.02	.01	.01	T.	1.22			4.42
Montgomery	Alabama	T.			.02	.22					T.	T.	.03	.19	T.			.12		.04	T.		.08	T.	.71	.33	T.	.12	.22	.22			4.41
Newbern	Black Warrior.	.02	.10			.07	T.				.14		.10	.10							1.41			.28	.63	.91		.01	.04	.20			2.30
Oneonta	do	.05	.04								.29	.23	.02	.09							.28			.51	.06	.07	.86	.12	.30	T.			4.01
Opelika ‖	Tallapoosa				.80	.30						.05	T.	.34	1.10						.23			.12	.35	1.05	.08	.34	.65	.11	.11	T.	.35	2.94
Ozark ‖	Coast	1.90	.20	.30		1.70						.30									.23			.35	1.05	.08	.34	.65	.11	.11	T.	.35	5.98
Prattville	Alabama				.38						.18	.12	.20	T.					T.		.30	.50	.75	T.	.75	.50	.60	.30	.40	T.	.70			9.20
Pushmataha	Tombigbee	T.				.26					.44	.26	.32								.03		.33	.30	.23		.42	.72	.44	.06				3.41
Robertsdale	Coast	.04	.06		1.86	.17					.45	.62					.02	.12	.20		.11	2.30	2.80	3.58	.96	.52	.12	.07	.24	.11	.34	.11	T.	3.51
Selma ‖	Alabama						.06	T.					.32	.35	.25					.07	.17	.10		.03	.16	.25		.19	.03	.45	.19			14.80
Springhill ‖	Coast	.22		.15			2.05	.06				.56	.25					2.05		.01	.30		2.10	.61	.34	1.30		2.10	.34	.10	.35		2.62
Talladega	Coosa	.22									.55	.30	T.	.12		.80							.12	.45	.15	T.	.75		.80	T.	.48		12.89
Tallassee ‖	Tallapoosa	.04					.13						.07	.19	.44						.29	.08	.01	.92	.45	.54	.01	.07	.11	.02	.29		4.74
Thomasville ‖	Tombigbee	T.	1.25			.90	.70	.25				T.	.54	.13					T.	T.			.35		.14	T.	.30	.65	T.	.38	.41		3.66
Troy	Escambia	.03			.42	.10					.06			.14	.13	.02		.02		2.75	.01	1.14	.25	.05	.18	.09	.01	.13		1.36	T.		6.00
Tuscaloosa ‖	Black Warrior.		.11	.04		.20	.58	T.				.06	.15	.06	T.						.04				1.12	24	T.			1.19	T.		6.89
Tuskegee	Tallapoosa												.32	.20	.10					T.			1.00	.77	.66		.51		1.24	.56			3.89
Union Springs ‖	do					.40	.39	T.								.04					.25	.27	1.62	.52	.30	.83	.87	.26	T.	.15	1.15		5.36
Uniontown	Black Warrior.				1.25							.70									.52				.48	1.14		.42		.40			7.05
Valley Head	Coosa					.45					T.	T.	.60												.35	.40		.55		T.	.25		4.91
Wetumpka ‖	do											.75	.17	.10	.14																		2.60
Mississippi.																					.97	.97	.62		.27	.95				.94			5.88
Aberdeen	Tombigbee		.30	.03							T.	.08	.15	1.16											.85	.29			T.		.30	T.	3.16
Agricultural College	do	1.10	.25	.05								.25	.15												.01	.80	.02			.60	.05	.70	3.98
Bay St. Louis	Coast	.06	.15					.18			.05	.69	.60					.06	.12	.05	.22	.20	.80	.96	.08	.08	.01			.31			4.62
Bay Springs	Leaf	1.50									.70	.50												.80	.60	.04	.15	.25		1.37			5.91
Biloxi	Coast			.10			.01	.70			.51	1.86									.54	1.85		.93	.40		.03			1.40	.01		8.34
Booneville	Tombigbee	.31	.01							.10	.04		1.75										23	.01		18		.54			T.	.22	3.39
Brookhaven ‖	Pearl		.36	.39		.06	.29	.06		T.			.50	.34				.42							1.59	.65	.02	.57			.29	.03	5.57
Collins	Leaf	T.	.11		.55	.05	.53					1.95	.73				T.				.16	.03		1.08	.68	.12	1.33			1.84			9.16
Columbia ‖	Pearl		.09	.24		.06	1.04	.32			T.	.15	1.37	.10	.20					.07		.66		.16	.99	.19	.23	1.60	.79		.45	.04	8.75
Columbus ‖	Tombigbee		T.	.09							T.	T.	.09	.65											.30	.35	.50	.10	.05		.50	.10	2.73
Crystal Springs ‖	Pearl		.45	1.33		.15	.13							.31											.70			2.80			.28		6.15
Edinburg	do	1.58	.08	.09		.11	T.				.26	.64	1.21			.11	.03							.50	1.18	.20				1.88	.05	.20	8.12
Enterprise ‖	Chic'sawhay		.90			.10							.90	.52											.50	.70	.35		.07		1.80		5.84
Fulton	Tombigbee	.19									.63	.03	.91												.24	.15						.65	2.80
Hattiesburg ‖	Leaf		.16				.74						2.12		.72							.10		.80		.64		.52	.38		.62		6.80
Hazlehurst ‖	Pearl		2.40	.20			.65						1.35	1.23											.40	.10	.12	.96	.04		.50		7.95
Hickory ‖	Chic'sawhay	1.35					.20				1.07	.45	.58										.83	.76	2.40	.08	.60			1.03			9.35
Jackson	Pearl	.35	.32			1.60	1.65				.03	.48	.13										.01	.25	.83	.02	.03			.18	.01		5 89
Lake ‖	do		.68				.20						1.05	1.90											2.00	.70		.32			2.20		9.05
Laurel	Leaf	.33	T.	T.	T.	T.	T.				.10	1.32	1.03	T.			T.				.14	.02		.40	T.	.12	.43	.42		.31		.10	4.72
Leakesville ‖	Chic'sawhay				1.75	.57	.35	.12				1.84	.97									1.41		.15	1.10		.80						9.06
Louisville	Pearl	1.20	.34		T.	T.					1.06	.08	.60											.30	.85	.20				1.02	.05		5.70
McNeill	do	1.22				T.	T.	.41			T.	.47				.05	.10	.38		.68	.05	2.25	.72	.59	.45	.15	.28	.10	.85	.20				8.95
Macon ‖	Tombigbee		.18	.35	T.							.08	.11	1.10					T.						.34	1.28	.22		.16		.25		4.07
Magnolia	Pearl	.98	.23	T.	.12		.24				T.	.16	T.	.06		T.	.50						T.	1.25	.39	.35	.46	.55	.10		T.		5.39
Meridian	Chic'sawhay	.78			T.	.09					.67	.60	.46		T.		.08						.11	.91	.92	T.	.02	T.		.13			4.77
Merrill ‖	Pascagoula	.20	.08	T.			3.65	.35				1.25	.15																				10.77
Monticello	Pearl	1.01	.52	.01	T.	.99	T.	.62			.31	.31	.21	.02						.13		1.95		.15	.90	.05		1.20	.05	T.	.66		7.82
Okolona ‖	Tombigbee			.22								.46	T.	3.85										.20	1.95	.15	1.12	.04		.35	.01		6.15
Pascagoula	Coast	1.23	.17				.26	.48				1.13													.75	.34			.15			.38	8.71
Pearlington	Pearl	.57	1.27			T.	T.	1.11			.09	.74	T.						.22		.82	.58	*	*	*	1.59	.69		.03	1.51			8.48
Porterville	Tombigbee	1.07				1.21						.67	.64		T.							.05	.82	.58	1.00	T.	.14		T.	1.51		T.	8.01
Shubuta ‖	Chic'sawhay		.20		.18	1.40							.80	.56										.45	2.67	.77	T.			.53			6.94
Tupelo	Tombigbee	.28	.05																			.20				.88		.20			2.52		4.62
Waynesboro ‖	Chic'sawhay		T.	.80		.80	.10			.04	.05		2.17												.34	.56	.03			.26	.84	T.	7.19
Woodland	Tombigbee	.25	1.15	.70							.30	T.	.45	T.			.10	.03				.28		T.	.08	T.	T.	2.25	T.		2.30		4.60
												1.05												.55	.05					.30		.25	

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 2, South Atlantic and East Gulf States.*

Date.	Virginia.										North Carolina.															
	Callaville.		Hot Springs.		Lynchburg.		Norfolk.		Richmond.		Charlotte.		Edenton.		Fayetteville.		Hatteras.		Newbern.§§		Raleigh.		Reidsville.		Salisbury.		Wilmington.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	94	69	91	64	94	72	90	70	94	71	92	72	94	69	93	73	85	74	93	71	92	72	95	69	96	72	89	73
2	99	75	90	66	96	76	97	71	97	74	97	74	98	75	97	75	85	77	95	74	97	75	98	74	99	74	94	76
3	91	71	82	67	87	70	82	74	88	74	98	74	92	75	99	76	88	77	93	74	94	70	93	68	94	70	96	76
4	93	68	87	64	83	69	85	72	90	71	89	66	92	72	91	73	86	78	92	72	86	72	82	69	88	71	90	72
5	97	70	85	65	94	71	93	72	95	74	90	69	93	72	94	72	89	77	93	72	92	72	86	64	94	69	90	74
6	98	71	89	62	90	73	93	72	94	72	94	74	92	75	99	75	87	74	96	75	95	76	96	69	98	64	94	76
7	88	65	82	55	80	64	82	66	78	63	83	67	80	70	86	69	78	67	83	70	82	67	84	64	92	64	83	72
8	86	55	78	46	83	57	83	61	84	60	86	61	87	52	87	63	79	65	87	59	84	64	88	58	89	54	81	66
9	88	60	82	55	84	60	84	65	84	63	88	66	90	61	91	61	82	70	88	62	87	65	86	62	88	64	83	68
10	95	70	80	62	90	70	89	69	89	70	92	69	93	71	93	68	83	73	92	67	91	69	92	69	92	60	87	71
11	89	68	81	58	86	70	85	69	87	68	84	70	94	74	90	72	85	75	92	72	88	71	89	68	87	69	88	69
12	89	70	79	65	87	72	89	72	92	71	82	70	94	75	92	71	84	77	91	69	89	71	87	69	90	69	87	76
13	89	70	80	58	91	69	89	73	90	70	90	69	96	75	96	73	86	77	90	74	92	72	93	68	94	69	90	77
14	94	70	82	63	93	73	93	75	97	74	95	73	99	76	97	73	84	77	94	74	95	74	94	69	97	71	91	76
15	91	68	83	62	86	71	85	69	91	70	92	74	94	70	95	74	87	72	89	75	92	73	93	73	95	74	91	70
16	85	67	79	63	84	67	80	70	85	66	95	72	87	64	92	70	83	72	88	68	88	68	92	67	98	70	84	69
17	80	60	86	60	85	67	77	65	81	62	93	72	88	60	87	71	79	67	90	66	84	72	90	69	93	72	83	71
18	95	72	88	65	97	74	89	68	93	71	101	73	95	74	97	71	84	76	92	72	99	74	98	72	102	74	89	75
19	92	70	83	64	91	68	88	63	88	68	102	72	95	80	101	77	85	71	95	76	98	68	97	69	102	70	91	70
20	84	66	86	66	89	65	84	68	87	68	83	69	90	68	90	68	81	70	89	67	86	68	86	65	87	69	89	68
21	82	68	79	52	87	67	84	71	86	64	87	69	88	70	84	68	81	70	84	68	85	68	90	64	89	66	80	68
22	87	62	76	53	81	64	84	71	86	63	85	71	88	64	87	69	81	71	86	69	85	69	88	65	88	69	78	71
23	85	65	79	61	85	66	82	71	86	66	84	69	92	66	89	70	84	72	90	68	85	69	87	65	84	69	85	70
24	90	71	79	60	89	70	88	71	94	69	89	68	93	73	94	72	84	77	93	73	90	71	95	66	91	68	89	73
25	88	71	77	51	82	66	77	70	84	69	88	70	83	63	89	71	86	74	92	72	82	71	79	67	86	70	87	73
26	75	64	78	55	83	64	75	68	75	66	82	70	84	70	87	70	80	71	86	72	78	69	86	62	84	69	86	72
27	88	62	82	62	88	69	87	68	89	65	88	71	92	70	88	71	85	76	88	70	88	70	91	69	91	70	88	73
28	94	68	83	58	92	71	92	73	92	71	94	71	95	73	92	71	86	76	93	72	92	72	97	70	95	71	89	73
29	97	71	88	64	95	72	94	74	96	73	95	70	99	78	91	75	86	78	95	74	95	68	98	70	99	70	88	76
30	94	70	87	64	99	73	92	71	97	71	92	70	98	72	92	70	87	77	93	72	91	70	97	70	95	75	90	75
31	96	70	88	64	94	74	91	78	96	73	94	73	97	72	97	72	87	73	93	75	95	75	97	65	99	76	88	71
Mns..	90.1	67.6	82.9	60.4	88.5	68.8	86.5	70.0	89.2	68.7	90.5	70.3	92.0	70.3	92.2	71.1	84.1	73.6	90.9	70.8	89.6	70.5	91.1	67.4	92.8	69.1	87.7	72.3

Date.	South Carolina.																Georgia.											
	Charleston.		Columbia.		Conway.§§		Ferguson. §§		Georgetown.		Greenville. §§		Newberry.		Society Hill.		Albany.§§		Atlanta.		Augusta.		Dahlonega.		Macon.		Rome.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	88	77	91	73	96	72	93	71	88	72	93	69	95	73	94	.....	92	69	89	72	92	74	96	68	90	73	96	70
2....	94	78	96	75	100	74	95	72	98	78	96	71	99	73	98	.....	95	72	88	72	95	75	94	66	94	73	97	72
3....	95	80	98	73	101	75	99	74	98	80	97	74	102	74	101	.....	99	74	93	73	98	77	95	65	98	74	100	72
4....	88	80	96	74	97	76	98	75	98	78	91	72	97	74	94	.....	96	74	94	71	94	75	90	67	93	71	99	72
5....	88	79	94	72	98	73	96	74	98	76	88	69	95	70	94	.....	98	73	90	71	92	74	93	67	91	72	98	70
6....	92	77	100	75	100	72	94	72	98	72	95	64	103	75	98	.....	99	74	95	73	100	76	92	70	98	76	100	72
7....	86	76	88	72	93	75	93	73	85	73	81	68	91	68	86	.....	94	73	87	70	91	76	89	69	88	70	90	66
8....	82	75	89	65	91	65	95	72	84	72	87	57	91	60	86	.....	92	71	88	65	90	68	87	55	89	68	96	61
9....	82	74	91	66	92	62	91	70	84	66	87	63	93	64	89	.....	93	71	89	68	91	68	91	62	93	67	98	63
10....	90	77	90	71	94	65	89	72	91	73	90	67	98	69	93	.....	90	72	90	70	92	73	85	60	91	72	94	68
11....	91	75	88	72	94	75	89	73	91	73	79	70	89	72	90	.....	92	72	82	69	90	74	76	59	89	74	85	71
12....	88	79	90	74	94	74	95	85	92	74	79	67	86	72	95	.....	93	70	82	71	86	73	85	60	86	74	93	73
13....	89	78	96	73	93	73	98	69	96	74	86	69	97	70	96	69	95	72	87	69	93	73	89	65	88	72	96	70
14....	91	77	96	72	96	73	94	70	96	76	92	70	99	71	98	71	97	71	87	67	94	72	90	65	93	69	100	67
15....	94	71	98	72	97	71	94	73	97	78	91	71	101	73	99	72	96	74	89	71	94	74	92	61	95	70	95	70
16....	92	75	96	72	92	65	84	73	88	72	94	69	102	70	100	73	98	74	94	71	98	72	95	67	97	73	98	70
17....	86	78	97	76	85	69	96	74	92	76	95	70	103	73	98	69	99	75	97	75	97	76	95	70	99	76	103	72
18....	90	79	99	74	95	73	100	75	91	76	100	73	105	74	101	67	104	74	97	75	99	74	97	75	104	76	105	72
19....	91	80	102	69	96	73	90	85	94	76	100	73	106	76	96	70	102	76	99	74	102	78	101	75	104	78	109	73
20....	92	73	89	70	84	69	89	86	93	74	84	71	91	68	90	69	96	75	89	69	86	74	96	70	89	75	95	73
21....	84	72	87	70	82	67	85	76	83	74	88	66	88	71	86	71	91	73	86	69	88	72	94	62	88	71	97	66
22....	81	74	85	69	82	69	86	72	81	71	83	67	85	70	94	69	85	71	79	68	85	71	95	65	81	71	90	68
23....	87	72	87	70	86	66	91	82	88	74	82	66	87	69	96	68	92	70	81	69	85	70	92	63	86	69	88	71
24....	90	73	92	71	92	68	90	80	91	74	87	66	92	70	98	70	92	70	84	67	91	70	90	62	88	68	94	68
25....	90	76	86	71	91	68	91	86	92	76	82	68	87	71	89	70	91	71	85	68	86	70	89	64	85	72	92	70
26....	89	77	86	72	92	72	90	80	91	76	84	69	84	71	88	71	90	70	84	70	88	72	80	61	88	72	90	71
27....	91	76	84	72	91	70	91	77	92	76	81	70	89	71	89	71	92	70	83	70	85	72	82	70	88	71	91	69
28....	91	76	92	72	88	69	94	78	91	75	89	68	94	71	91	72	90	73	90	70	92	72	92	66	90	72	94	71
29....	89	78	92	72	89	72	87	85	91	76	93	70	96	70	93	73	90	74	91	72	90	72	86	65	87	72	95	72
30....	84	74	91	76	89	71	95	83	87	73	92	71	92	72	94	70	93	73	88	74	89	76	90	69	86	74	95	72
31....	91	76	96	73	93	62	95	84	92	75	92	70	97	72	96	69	94	74	91	71	94	72	90	70	92	73	95	71
Mns..	88.9	76.2	92.3	72.0	92.4	70.3	92.5	76.5	91.3	74.5	90.0	68.6	94.6	70.9	93.9	70.21	94.2	72.4	88.6	70.5	91.8	73.1	90.6	65.6	91.2	72.2	95.7	69.9

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 2*—Continued.

Date.	Georgia.								Florida.																	
	Savannah.		Thomasville.		Waycross.§§		West Point.§§		Avon Park.		Fort Myers.§§		Jacksonville.		Key West.		Marianna.§§		Miami.		Orange City.		Orlando.		Pensacola.		Tallahassee.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	92	75	89	71	92	70	90	72	90	72	89	73	92	75	87	78	89	72	88	73	93	69	93	72	82	73	90	72
2....	95	75	93	71	93	72	92	73	91	74	92	73	94	74	87	78	93	70	88	75	97	70	92	74	83	75	93	73
3....	97	76	95	70	98	75	92	73	93	73	92	73	94	76	87	78	101	72	88	74	98	69	94	75	86	77	96	72
4....	92	77	93	70	97	74	83	74	93	72	89	73	93	75	87	78	97	70	88	73	96	69	92	72	91	74	93	72
5....	92	76	95	73	95	73	91	71	93	73	85	73	93	75	88	75	96	71	88	73	96	70	93	74	89	70	95	71
6....	95	75	97	76	98	77	98	72	92	72	83	74	95	70	88	76	100	75	87	71	99	70	95	73	93	73	93	74
7....	83	72	94	73	91	69	90	72	91	72	86	72	90	70	82	75	96	69	87	72	98	70	91	71	94	74	95	72
8....	83	73	92	71	86	72	90	66	88	71	87	73	86	72	86	74	98	69	86	71	94	69	92	75	89	77	94	73
9....	84	72	92	72	91	69	92	67	89	70	90	71	89	74	87	78	99	73	87	72	96	70	91	75	85	78	95	72
10....	91	72	86	73	96	70	93	72	90	69	88	71	88	74	88	78	91	73	86	73	94	67	91	69	84	75	85	73
11....	89	74	90	73	92	72	86	72	93	72	89	72	90	74	87	73	92	71	88	74	92	70	93	73	84	75	89	71
12....	91	76	90	72	90	70	80	73	95	71	90	74	90	75	88	79	95	71	89	79	93	70	91	72	85	79	88	72
13....	95	75	95	70	94	74	85	70	95	75	86	70	90	69	88	79	100	69	88	80	90	70	93	71	87	76	93	71
14....	95	72	95	70	95	69	88	68	93	69	88	68	92	73	88	78	100	69	89	70	92	66	89	74	89	77	95	69
15....	94	72	96	69	97	69	92	68	94	70	89	71	92	74	88	78	98	68	88	70	97	65	92	72	87	75	96	72
16....	97	75	98	73	98	73	93	71	94	69	90	76	97	73	88	79	98	72	89	76	98	68	94	72	90	75	98	72
17....	92	69	102	74	99	72	96	73	94	74	89	74	93	74	90	76	102	74	90	73	99	68	94	73	94	74	100	74
18....	93	74	104	75	100	72	99	73	92	70	89	74	95	74	88	76	103	75	91	72	99	68	96	74	97	78	102	75
19....	95	76	96	74	98	72	102	74	93	72	88	75	93	75	87	79	97	74	88	78	100	69	93	72	88	73	91	74
20....	96	74	94	72	97	74	90	70	92	75	89	74	94	75	89	78	98	69	88	75	95	73	92	78	87	76	94	73
21....	85	70	88	72	94	75	83	71	90	74	93	71	88	71	89	80	92	75	89	75	95	70	94	75	84	75	87	75
22....	83	70	84	71	88	71	77	70	93	72	91	72	90	72	89	81	89	72	88	78	95	69	93	71	83	69	86	71
23....	88	71	92	69	93	68	85	69	93	69	90	72	90	72	88	79	94	69	88	77	91	68	88	70	87	69	90	71
24....	90	70	91	71	92	69	87	68	92	70	91	74	90	73	88	79	94	71	89	75	96	70	91	71	84	75	91	70
25....	91	74	86	71	93	70	87	68	92	72	85	71	91	74	89	80	93	72	88	76	95	70	94	73	86	70	88	72
26....	92	74	90	71	91	70	84	70	89	71	90	71	91	74	88	76	87	72	88	80	96	69	92	72	86	77	91	71
27....	92	72	93	69	92	70	90	71	94	71	91	72	91	74	89	80	91	70	88	80	95	71	92	74	87	77	90	72
28....	91	74	90	71	89	73	86	70	93	71	90	73	90	70	89	80	92	72	88	76	95	69	91	71	89	75	90	72
29....	90	73	92	71	90	71	88	72	92	72	89	73	90	69	88	79	89	75	87	71	91	69	93	71	86	71	90	73
30....	90	76	93	72	93	72	86	70	90	71	88	70	91	76	89	77	96	71	87	72	93	70	92	74	86	73	91	72
31....	93	74	94	72	93	71	89	73	90	72	90	73	92	74	88	79	96	72	88	79	95	68	93	71	87	79	91	72
Mns..	91.2	73.5	92.9	71.7	93.7	71.5	89.2	70.8	92.0	71.6	88.9	72.5	91.4	73.2	87.8	77.8	95.4	71.5	88.0	74.6	95.3	69.1	92.4	72.7	87.4	74.6	92.3	72.2

Date.	Tampa, Fla.		Alabama.																Mississippi.									
			Anniston.		Bermuda.		Birmingham.		Eufaula.§§		Mobile.		Montgomery.		Tuscaloosa.§§		Uniontown.		Bay St. Louis.		Columbus.§§		Hattiesburg.§§		Jackson.		Meridian.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	88	75	88	71	95	71	88	74	88	68	85	74	92	74	97	69	92	70	85	73	95	71	92	71	93	72	89	73
2....	90	75	90	73	94	72	88	71	92	69	86	75	92	73	96	70	93	71	87	74	89	72	89	72	88	73	90	72
3....	92	70	91	71	96	70	90	71	96	71	89	74	93	74	99	70	94	70	87	72	94	69	90	67	93	70	92	69
4....	90	72	94	70	94	71	95	72	93	72	95	74	95	76	102	70	96	69	91	72	97	71	93	73	97	70	92	72
5....	87	75	95	71	93	70	96	72	93	67	92	73	91	74	99	73	97	70	96	74	98	73	97	68	95	72	93	72
6....	89	74	98	71	98	71	99	72	97	70	98	70	99	74	101	71	99	71	97	73	102	73	98	71	97	69	96	71
7....	86	74	90	67	95	68	92	71	91	67	95	73	94	76	98	71	96	68	93	70	97	68	98	69	96	69	94	70
8....	89	72	92	61	97	67	95	71	92	63	95	75	94	70	99	65	95	68	92	73	98	67	98	70	96	72	92	69
9....	85	72	92	72	99	67	94	75	92	65	90	77	95	74	102	68	95	70	90	70	101	68	97	72	96	68	94	68
10....	89	71	84	70	92	72	87	72	90	69	86	73	92	73	95	72	94	72	88	71	85	70	95	67	92	74	90	69
11....	90	74	82	71	85	73	82	72	89	70	86	74	86	74	88	72	83	73	88	72	83	74	78	72	89	72	76	73
12....	90	73	84	72	88	64	86	70	90	69	89	75	87	74	89	72	87	72	89	73	88	73	90	72	85	72	81	70
13....	90	72	87	68	92	63	85	69	87	68	88	76	89	70	96	68	88	69	90	74	93	70	90	69	92	71	89	70
14....	91	70	91	65	87	69	90	69	88	66	91	74	89	70	99	68	91	72	90	72	98	72	91	69	94	72	91	71
15....	93	72	90	71	92	68	88	72	94	65	91	75	95	69	100	69	95	71	90	71	96	72	96	68	94	72	93	73
16....	91	67	94	67	94	69	94	72	96	68	94	75	95	76	101	72	96	73	92	73	97	74	94	70	96	73	92	73
17....	91	77	97	72	95	72	96	74	97	71	96	74	97	75	101	73	99	74	95	71	99	73	96	68	97	73	95	74
18....	88	70	99	71	99	73	98	73	101	70	96	78	100	75	105	72	100	76	94	75	101	73	97	71	98	74	96	76
19....	89	73	100	71	100	74	99	69	103	74	95	74	101	73	106	74	100	77	95	73	102	74	100	72	98	75	97	75
20....	87	76	90	68	90	73	92	69	88	68	83	74	90	72	102	73	97	74	90	74	90	75	97	75	94	76	92	73
21....	88	78	90	67	82	72	92	68	74	69	80	74	81	71	102	69	93	70	84	73	97	67	92	72	94	70	91	71
22....	91	74	84	69	84	72	88	70	81	67	80	70	88	71	101	70	92	70	87	69	97	65	84	72	94	65	90	71
23....	92	72	82	67	89	69	81	69	86	68	86	71	88	72	91	74	90	70	89	70	87	67	87	70	83	71	87	69
24....	93	65	87	68	83	73	84	70	85	67	84	73	86	69	89	69	88	69	88	74	88	69	88	70	89	70	84	69
25....	88	70	86	70	84	69	82	69	87	66	86	73	87	71	92	71	86	70	87	74	87	70	89	72	92	72	84	70
26....	90	71	86	71	81	68	87	69	81	67	84	73	88	70	96	71	88	69	89	72	95	70	87	70	92	70	88	70
27....	92	73	89	72	89	69	88	70	86	68	86	74	92	73	98	70	89	70	89	74	90	70	90	69	95	70	87	69
28....	92	75	90	69	86	70	90	72	88	68	90	74	91	72	95	73	94	71	92	72	97	70	94	70	96	70	91	70
29....	93	75	92	71	87	70	94	70	87	69	87	72	89	71	94	73	90	72	86	74	94	73	89	70	88	75	90	70
30....	90	73	87	70	90	71	89	70	87	70	88	72	90	70	93	71	91	72	87	72	92	70	90	70	91	68	86	69
31....	91	71	91	71	94	70	85	74	90	71	90	75	91	76	95	72	93	71	90	74	92	72	91	69	95	73	92	73
Mn...	89.8	72.6	90.1	69.6	91.1	69.9	90.1	71.0	90.0	68.4	89.1	73.8	91.5	72.6	97.5	70.8	92.9	71.1	89.9	72.5	94.2	70.8	92.2	70.3	93.2	71.4	90.1	71.1

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 3, OHIO VALLEY.

Prof. FERDINAND J. WALZ, District Editor.

GENERAL SUMMARY.

The severe drought conditions and intense heat waves which prevailed over so large a portion of the district and during so great a part of the month were the principal features of weather conditions for July, 1913, in the Ohio Valley. Over the northeastern portion of the district, which includes central and eastern Ohio, West Virginia, and the western portions of Pennsylvania and New York, the rainfall was ample, while in the Muskingum Valley of Ohio and over a considerable area in West Virginia the rainfall was excessive. Also the temperature conditions over the northeastern portion of the district were not nearly so severe as over the rest of the district. Showers were quite frequent in much of the district where droughty conditions prevailed, but on account of the intense heat and excessive sunshine there was rapid evaporation of moisture, and the showers even where frequent and timely were insufficient in most cases for vegetation and nearly all growing crops suffered severely.

The average temperature of the month was decreased decidedly by reason of the two periods when minimum temperatures were unseasonably low. The extremes in temperature were unusually large, varying between 38° and 109°. Thunderstorms were frequent but not as numerous as usual in July. Quite a few of them were attended by destructive winds and lightning and a few by excessive rains, but there was very little hail, except in the storm which passed over east-central Ohio on the 13th and 14th, which appears the more remarkable as the atmospheric conditions prevailing at numerous times would seem to be favorable for the formation of hailstorms.

The month opened with a shallow low-pressure area in the Ohio Valley, which passed off to the northeast during the 1st and 2d, attended by scattered thunderstorms, and was succeeded by a weak "high" during the 3d and 4th. During the 5th–6th a shallow "low" passed to the northeast across the Lake region, with the western edge resting in the upper Ohio Valley on the 6th and attended by rains in the northeastern portion of the district. During the 9th–10th a shallow trough of low pressure swept across the district, and during the night of the 11th and day of the 12th a low area of marked strength formed across the north-central States, the center of disturbance being far to the north but with the southern edge in the Ohio Valley. These two disturbances caused rains that were more or less general over the whole district.

From the 13th to the 18th, inclusive, the pressure was high in the south and southeast and no disturbances passed. During the 20th an area of high pressure of marked energy moved in from the northwest and overspread practically the entire interior until the 22d. On the 23d and 24th a shallow trough of low pressure extended into the Ohio Valley, but on the 25th a high pressure area overspread the north-central sections and gave cool weather in the Ohio Valley. This area of high pressure finally settled over the southeastern States, continuing over those sections until the 31st and causing the heat wave of the last part of the month.

The following table summarizes the chief features of meteorological interest for the several sections of the district:

Portions of States included in the Ohio River Basin.	Temperature.				Precipitation.						
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest monthly.	Least monthly.	Greatest in 24 hours.	Average number of days.	Average snowfall.
New York	66.9	−0.4	94	38	3.55	−1.74	4.24	3.08	1.22	12	0
Pennsylvania	71.1	−0.2	99	40	4.81	−0.21	8.00	2.38	3.25	13	0
Maryland	67.7	+0.4	92	38	5.42	+0.65	6.80	4.54	1.10	13	0
West Virginia	74.4	+1.2	103	42	5.98	+1.27	10.07	2.14	4.48	12	0
Ohio	74.8	+1.1	103	40	5.55	+1.30	13.12	1.71	7.55	11	0
Indiana	78.4	+3.0	108	44	3.12	−0.68	8.83	0.82	2.61	8	0
Illinois	78.3	+2.7	108	41	2.12	−1.54	6.55	0.05	2.84	6	0
Kentucky	79.9	+3.3	109	48	2.54	−2.07	6.67	0.35	3.05	7	0
Tennessee	80.0	+2.3	104	45	3.45	−0.96	7.87	0.90	3.00	8	0
Alabama	80.5	+1.3	104	51	2.89	−1.98	4.29	1.58	1.85	8	0
Georgia	76.1	+1.1	100	50	3.38	−2.87	3.68	3.08	1.92	8	0
North Carolina	72.5	+1.7	99	40	4.18	−0.86	10.31	1.37	2.35	11	0
Virginia	72.1	+1.9	98	37	2.94	−1.71	5.38	0.86	2.49	10	0

TEMPERATURE.

The intense heat wave which prevailed so largely during the last half of June continued during the first five days of July. Relief came about the 6th when there was a change to cooler, and moderate temperatures obtained over most of the district from the 6th to the 13th, inclusive. On the 6th and 7th and again on the 10th and 11th, minimum temperatures were unseasonably low, registering in the 40's and 50's, while at one station, Deer Park, Md., the temperature fell to 38° on the morning of the 8th.

Another heat wave set in about the 14th and continued until the 19th, during which period some of the highest temperatures on record in the district were reached and comparable only to those registered in July, 1901. On the 17th and 18th maximum temperatures of 100° and over were registered generally in Illinois, Indiana, Kentucky, Tennessee, and northern Alabama, the highest reached being 109° at Greensburg, Ky., which is the highest ever reached in that State except in July, 1901, when it was 112°. Moderate summer temperatures obtained from the 20th to 25th, inclusive, and there were some days during that period when it was unseasonably cool, but another intense heat wave set in on the 27th and continued to the end of the month with maxima ranging between 105° and 108°, the hot wave this time extending into Ohio, Pennsylvania, and West Virginia, as well as covering sections visited by the preceding hot wave. The highest temperature registered during this period was 108° at several places in southern Indiana on the 30th. This was also the highest in Indiana except in July, 1901, when it was 112°. There were many prostrations and numerous deaths from the heat during both of these hot waves.

In western Pennsylvania the average temperature of the month was slightly below normal, and on the whole the month was pleasant, the only oppressive heat that caused marked suffering and prostrations on account of the high humidity attending it, occurring on the 1st and 2d. In West Virginia the temperature averaged 1.2°

above normal and there were great variations in extremes, which ranged from 42° to 103°. On account of the numerous rains in this State there was comparatively little suffering from heat. Over the rest of the district, however, it was not only next to the warmest July, but next to the warmest month experienced during the past 25 years or more. In Ohio it was one of the warmest and also one of the wettest Julys of record. In Tennessee the record month for heat was July, 1909, but with the exception of that year July just past was the hottest month since 1883.

A noteworthy feature of the hot wave which prevailed on the 18th and 19th was the remarkably high temperatures reached at the mountain stations in North Carolina, where high temperature records were broken at nearly every station. At Marshall, N. C., the temperature was 99° on the 18th, which is 2° above previous records. At Waynesville, N. C., elevation 2,792 feet, it was 97° on the 19th, 5° above previous records. At Asheville a maximum of 94° was reached on the 19th, 3° above previous records. At Highlands, elevation 3,850 feet, it was 87° on the 19th, 1° above previous records, while at Eagle's Nest, 5,050 feet, a maximum of 82° was reached on the 18th. At Banners Elk, N. C., a minimum temperature of 40° was reached on the 8th.

PRECIPITATION.

The rainfall for the month was excessive in portions of West Virginia and Ohio and ample over the rest of the northeastern portions of the district, as far west as central Ohio and the western borders of West Virginia, and over the upper basins of the Wabash and White Rivers; also over a small area in extreme southern Illinois and western Kentucky and over a few limited areas in the southern part of the district. A great deficiency occurred over eastern Illinois, the lower basins of the Wabash and White Rivers of Indiana, and in southern Illinois and north-central Kentucky, where the rainfall was generally less than 2 inches and in many places less than 1 inch. Also there were a few limited areas in Tennessee where the monthly amounts were less than 2 inches. Over the rest of the district the rainfall was generally about half of the normal amount.

Over the Muskingum River basin of Ohio excessive rains on the 13th–14th caused an aggregate for the month of from 10 to 13 inches. There were also between 8 and 10 inches over much of the watersheds of the Little Kanawha and Great Kanawha Rivers in West Virginia. Excessive rains which fell over sections of the watershed of the Little Kanawha and other west-central counties of West Virginia on the 10th caused freshets in the rivers and considerable damage to crops in river bottoms. During the night of the 13th remarkably heavy rain fell over the Muskingum watershed and other southeastern counties of Ohio. Within 12 hours a fall of over 7 inches occurred at Philo and Toboso, and over 6 inches at Zanesville. As a result of this rain the lower Muskingum River rose about 5 feet above flood stage and all the smaller streams in that section overflowed their banks and some of them were higher than ever known. A large amount of damage was done to railroads, highways, bridges, and crops. Another heavy rainfall occurred over much of the same section on the morning of the 17th, when 1.75 inches fell at Brilliant in one hour, 2 inches in two hours at Gratiot, and 2.48 inches in one hour and 45 minutes at Milligan. Several towns and villages were flooded and suffered considerable loss.

The rains for the month came mostly as local showers, and there were great discrepancies in the amounts in comparatively small areas. The only rains that were fairly general and moderate in amount occurred about the 2d–4th, 10th–12th, and the 24th–28th. Except in Pennsylvania, West Virginia, and much of Ohio, where rains were remarkably frequent, there were numerous days with no rainfall or only a few scattered showers over large areas, and at many stations the total rain for the month came in only one or two showers.

Over much of the western and central portions of the district precipitation has been deficient during the past two or three months, and the droughty conditions that prevailed during July were not only intense for the month, but were augmented in effect by the deficiency of the preceding two months. Crops suffered severely from the intense heat and dryness, and wells and springs in portions of Illinois, Indiana, and Kentucky went dry and people were hauling water for stock. The Saline River in Illinois was completely dry in places for the first time within the knowledge of the citizens of that section.

In Tennessee, for the State as a whole, the precipitation averaged only about 1 inch below normal for the month, yet the suffering by crops and vegetation generally was extensive and serious, and in many localities stock water became scarce. The rains that occurred were remarkably local in character. In Maury and Marshall Counties, Tenn., the rain of the 18th was the first since June 8 in those counties.

Drought conditions have prevailed largely in Kentucky since April 1. The total average rainfall over that State for the 4 months, April to July, inclusive, is the smallest during the past 25 years, the aggregate for the 4 months being 5 inches below the normal. The average total rainfall for Kentucky during July has been less in 4 past years, namely, 1894, 1901, 1902, and 1911, but in each of these years the aggregate rainfall for the 3 preceding months was greater than this year. In other words, the rainfall for the crop-growing season was the smallest since State-wide records were begun some 25 years ago. Crops growing and maturing during July were materially curtailed, and garden truck and early corn amounted to but little. Tobacco was seriously set back, and unless favorable conditions should follow soon after the close of July both tobacco and corn promise to be practically failures. Small streams had generally dried up in the portions of States more seriously affected, and stock water was scarce, and farmers were hauling water for domestic purposes.

MISCELLANEOUS.

The following notes on damage from severe storms, lightning, and wind are reported:

July 1.—A man and two horses were killed in Fayette County, Ohio, and a valuable barn containing much hay and machinery was burned in Delaware County, Ohio, by lightning.

July 4.—One man was killed and three severely injured by lightning in Coshocton County, Ohio.

July 8.—Three barns were destroyed and a valuable colt killed by lightning in Shelby County, Ohio; also thunderstorms and wind did great damage to buildings, trees, and crops, telephone wires and electric car service in Vermilion County, Ill. A barn at Chrisman and two barns at Paris, Edgar County, Ill., were struck by lightning and burned.

July 9.—A valuable barn with its contents was destroyed and several residences were damaged in Clinton County, Ohio, a young man was killed in Fayette County, Ohio, and a man was killed by the falling timbers of a barn which was blown over in Guernsey County, Ohio; also three barns were destroyed in Knox County, Ohio.

Serious damage was done by hail of large size in several counties in Ohio. In Harrison County some were picked up that measured 7 inches in circumference, and in Guernsey County they were as large as goose eggs. One of the most destructive hailstorms occurred in the south end of Columbus, Ohio, and the country just to the south of the city. In some parts of the area covered by the storm the hailstones ranged in size from hickory nuts to nearly 3 inches in diameter. One stone that struck and broke the arm of a man who was endeavoring to control his team of horses measured 2⅞ inches in diameter 15 minutes after it was picked up. At the city sewage disposal plant a stone was found that weighed 2.6 ounces. Garden truck in that vicinity was almost completely destroyed, and fruit and shade trees were badly damaged. There are a large number of greenhouses in that part of the city, and they suffered severely. About 80 per cent of the glass in the seven large greenhouses of the Columbus Floral Co. was broken and the tender flowering plants inside nearly destroyed, the loss of this company being estimated at $20,000. The total loss in that vicinity is placed at $150,000.

July 10.—At Albion, Ill., three barns were struck by lightning and burned. A destructive storm occurred in Ballard County, Ky. Many stock barns, outbuildings, and several residences were struck by lightning. Losses in stock, buildings, fences, and crops were heavy. Also a Mrs. Watson was killed by lightning. A severe electric storm caused considerable damage near Rockport, Ind., several barns being struck by lightning and destroyed. One of the barns contained a mule, 15 tons of hay, and a crop of unthrashed wheat, all of which were destroyed.

July 13, 14, 15.—Severe storms occurred in Ohio, attended by excessive rains, lightning, and hail. (See special article by J. M. Kirk, local forecaster, Columbus, Ohio, herein.)

July 17.—There were three deaths and two prostrations in Louisville, Ky., from heat, and much suffering in the congested districts.

July 18.—There were 13 deaths and 10 prostrations in Louisville, Ky., on account of heat, the temperature reaching 104°, the third highest on record.

July 19.—High winds and heavy rains caused considerable damage in many localities in West Virginia. Also there were severe storms in northern and eastern Kentucky. The wind reached a velocity of 60 miles per hour at Louisville, attended by heavy rain, hail, and unusual darkness. Trees were blown down and interurban service interrupted. A horse was killed and two negroes injured by lightning. Damage amounting to about $75,000 was done in and about Paris, Ky., and about $50,000 at Frankfort, Franklin County, Ky. In the latter section many farm houses, silos, outbuildings, and fences were wrecked. A tornadic funnel-shaped cloud was observed by several.

July 20.—A destructive hailstorm swept across Ashland and southeastern Wayne Counties, Ohio. The width of the hailstorm was about three-fourths of a mile. A large amount of damage was done to crops, in some instances farmers losing entire crops of corn and oats. Two persons were killed in a church by lightning near Highlands, N. C.

July 22.—A large barn near Fayetteville, Tenn., was struck by lightning and totally destroyed, together with three head of stock and a quantity of grain and hay.

July 27.—A large barn containing 20 tons of hay and a large amount of farming implements was destroyed by lightning in Trumbull County, Ohio.

July 29.—A man was killed and two other persons severely injured by lightning in Knox County, Ohio, and a barn and contents were destroyed in Trumbull County, Ohio.

July 30.—Lloyd Whaley was killed by lightning in Ritchie County, W. Va. Four deaths and five prostrations from heat occurred in Louisville, Ky.

July 31.—Several violent storms swept through central Indiana, and a large amount of damage was done to buildings and shade trees in Indianapolis. Plate-glass windows were blown out in the business section of the city and business houses were unroofed. Street-car service and telegraph and telephone communication were interrupted. At Red Hill, near Livingstone, Ky., lightning struck four men who were sitting on a porch. One was killed outright and two others were seriously injured. A wind storm passed over the fair grounds at Nashville, causing damage of at least $20,000 to buildings and grounds.

RIVERS.

Streams throughout Pennsylvania and West Virginia, the headwaters of the Ohio, were at normal stages during the month and the water supply was ample for all needs. There was a marked rise in the Little Kanawha in West Virginia, caused by the heavy rains of the 10th. Floods were caused by the excessive rains of the 13th–15th in the streams of southeastern Ohio, especially in the Muskingum drainage area. These rains and freshets caused a sharp rise in the Ohio River and good stages all the way down. In some of the reaches below the mouth of the Muskingum the Ohio overflowed the bottoms and damaged crops. The Cumberland River was too low for navigation, except where made navigable by artificial means. The Tennessee River in its entire length was at low stages all the month and navigation was suspended after the 9th.

DESTRUCTIVE STORMS OF JULY 13-14 IN OHIO.

[J. M. Kirk, Local Forecaster.]

During the afternoon and night of July 13 unusually severe storms passed across middle and eastern Ohio, which destroyed property to the extent of many thousands of dollars. A brisk to high wind had prevailed during the most of the day, and this, in some of the northern and middle-eastern counties, had already done considerable damage. During the afternoon light showers occurred in some localities, and in the late afternoon hail fell in about two-thirds of the northern and several of the middle-eastern counties. In parts of Ashland, Coshocton, Huron, Medina, Richland, Stark, and Wayne Counties the hailstones were unusually large and caused a great amount of damage to growing crops and, in some instances, to buildings. At Burbank, Wayne County, 32 panes of glass were broken in one house and 30 in another. At Lodi, Medina County, the stones were as large as hens' eggs, and a large greenhouse there lost every glass.

The lightning during the storm was unusually severe. Some observers reported the thunder and lightning to have been almost continuous throughout the night. A large number of buildings were struck and many barns destroyed, together with their contents, which in most cases included the season's crop of hay. In the 5 counties of Crawford, Hardin, Huron, Marion, and Wyandot 23 barns were reported to have been destroyed, while in Knox County alone 6 barns were destroyed and several other buildings damaged. The telephone and telegraph service was almost completely paralyzed for a short time in that part of the State.

The most noteworthy feature of this storm period was the almost unprecedented rainfall that occurred in some of the southeastern counties. The following table gives

the amounts that fell during the afternoon and night of the 13th at stations in middle-northern and southeastern Ohio. The most of these stations are in the Muskingum watershed, and the principal part of the rain fell during the night in less than 12 hours.

Station.	County.	Amount.	Length of period.
Ashland	Ashland	2.00	2 hours.
Bladensburg	Knox	3.35	8½ hours.
Bucyrus	Crawford	2.40	Less than 24 hours.
Cambridge	Guernsey	4.46	12 hours or less.
Clarington	Monroe	3.50	Do.
Delaware	Delaware	2.62	9 hours.
Gratiot	Licking	3.98	8 hours.
Killbuck	Holmes	3.50	12 hours or less.
Lima	Allen	2.35	Less than 24 hours.
McConnelsville	Morgan	3.24	12 hours or less.
Milfordton	Knox	2.90	Do.
Milligan	Perry	3.56	6½ hours.
Philo (1)	Muskingum	6.48	12 hours or less.
Philo (2)	do	7.17	8 hours 42 minutes.
Summerfield	Noble	4.51	12 hours or less.
Toboso	Licking	7.40	Do.
Upper Sandusky	Wyandot	3.08	Do.
Zanesville	Muskingum	6.70	Do.

The rainfall was heaviest in Muskingum, eastern Licking, and western Guernsey and Noble Counties. All the streams in southeastern and middle-northern Ohio rose rapidly and by Monday morning many of the smaller ones had overflowed their banks and were sweeping over the lowlands. In the southeastern counties small creeks became raging torrents, carrying fences, crops, and light buildings along in their swift currents.

The Muskingum rose 14.7 feet at Zanesville to the 23-foot stage, or 2 feet below flood stage. At McConnelsville it reached 20.8, or 5.8 feet above the flood stage. At Beverly it reached 29, or 4 feet above the flood stage.

The damage along the Muskingum was not extensive, however, except at Marietta, where the new Baltimore & Ohio Railroad bridge and a temporary pontoon bridge constructed by the city were washed out, and a man was carried over the dam in the river and drowned.

The destruction was much greater in the valleys of the smaller tributaries than along the main stream. In many of these the water was higher than it was during the great flood of last March, and in some it was higher than ever before known. In the hilly country of southeastern Ohio the towns are usually situated in the narrow valleys, and when the flood came upon them hundreds of the inhabitants were compelled to flee for their lives to the neighboring hills. On Monday, the 14th, the valley of the East Fork of Duck Creek for a distance of 45 miles, and of the West Fork for a distance of 25 miles, in Noble and Washington Counties, were reported to have been under 10 to 25 feet of water.

CONDITIONS BY COUNTIES.

Ashland.—Points along the streams never before reached were water covered, and bridges that withstood the March flood were washed away. Crops were destroyed or badly damaged by the wind, rain, and hail. One farmer lost 20 sheep by lightning.

Coshocton.—The storm lasted from Sunday until after daylight Monday morning. It was accompanied by high winds, which leveled orchards, corn, and grain, and considerable damage was done by hail and lightning.

Guernsey.—All streams were reported to have been out of their banks. Wills Creek was higher than shown by any previous record, and many houses in that valley were flooded. Water from this stream reached the Derwent mine of the O'Gara Coal Co. and flooded the entire workings. The machinery was badly damaged and 17 mules, caught in the mine, were drowned. The total loss to the company was estimated at $65,000. Several other mines were flooded also, but the losses were not so great. Telephones and railroads were badly crippled and the damage to crops by rain and hail was heavy.

Knox.—The thunderstorms during the night were severe. Six barns were destroyed, several houses and barns were damaged, and a number of farm animals killed. Wheat and hay were scattered about by the wind and damaged by the rain, and corn and oats were blown down.

Licking.—In addition to the heavy loss to crops about 50 bridges were washed away, causing a loss of $100,000.

Morgan.—The damage in this county was greatest along the Olive Green and Meigs Creeks, to the east of the Muskingum. Many bridges along these streams were washed away or badly damaged. On Meigs Creek alone the loss in bridges was $42,000. The fences and crops in the bottom lands were nearly all lost, while on the higher ground the crops were damaged by wind and rain. Meigs Creek was said to be 4 or 5 feet higher than any previous record. The Muskingum reached several buildings in both McConnelsville and Malta, but the damage from the high water was not large.

Muskingum.—This county was in the center of the heavy rainfall area. Thousands of acres in the lowlands were inundated and the damage to crops was probably heavier than in any other county. There were 34 county bridges damaged or washed out, with a loss estimated at $50,000. Railroad traffic was demoralized for a day or two on all roads. On the Ohio River & Western it did not get back to normal conditions for two weeks. In a distance of 40 miles east of Zanesville that railroad lost 26 bridges. The Muskingum did not reach flood stage at Zanesville, and the damage in that city was slight.

Noble.—The loss to property in this county was heavy, especially along the branches of Duck Creek. The following estimates of lossess have been furnished: Highways, bridges, and buildings, $300,000; crops, $500,000; live stock, $2,000; loss due to suspension of business, $10,000. At Dexter City the water was 6 feet deep in the depot, and several buildings were washed away. At Belle Valley two houses were flooded to their second story and one was carried out upon the railroad track. Seven houses were washed away at Harriettsville. A passenger train on the Ohio River & Western Railroad ran into a washout and the engineer and three passengers were injured.

Richland.—A high wind prevailed all day on Sunday, and the rainstorm began about 6 p. m. The thunderstorms during the night were unusually severe. Telephone service throughout the county was badly crippled. Hail fell in extreme northern and southern parts of the county, doing considerable damage in those localities. Some of the streets and basements in Mansfield were flooded to some extent.

Stark.—Much damage was done to crops by wind, rain, and hail. The rainfall in this county was not excessive and there was no loss by high water. In the southwestern part a severe hailstorm occurred which nearly destroyed the growing crops in a path about two miles wide. Electric railways in that vicinity and telephone lines throughout the country were out of commission for several hours.

Washington.—Many bridges were lost, and crops in the lowlands were almost ruined. Several villages on Duck Creek were badly wrecked by the high water. In some instances stores with their stocks of goods were said to have been completely submerged. At Lower Salem 2 bridges were washed out and 5 stores and 10 houses were destroyed. A passenger train was caught in the flood of Duck Creek at Stanleyville and the passengers were taken out in a small boat. Within a few hours the water was running 3 feet over the top of the coaches.

TABLE 1.—*Climatological data for July, 1913. District No. 3, Ohio Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York.																				
Allegany	Cattaraugus	1,441	7	67.5	.....	94	1	41	22	41	4.24	.....	1.22	0	10	11	13	7	nw.	C. E. Whitney.
Bolivar	Allegany	1,800	19	66.4	− 0.4	94	1	38	22	44	3.08	− 1.74	0.75	0	13	10	13	8	nw.	C. F. Hoffman.
Olean	Cattaraugus	1,402	5	.....	.....	.....	.....	.....	.....	.....	3.33	.....	0.98	0	12	23	5	3	w.	John W. Alles.
Pennsylvania.																				
Aleppo	Green	1,135	12	71.8	− 0.2	96	1	44	7	37	4.32	− 0.77	1.53	0	9	15	13	3	sw.	J. S. Hinerman.
Baldwin	Butler	1,404	7	68.9[a]	− 0.6	91	1	45[a]	11	36[a]	4.88	+ 0.84	1.06	0	13	14[a]	12[a]	4[a]	w.	S. H. Templeton.
Beaver Dam	Beaver	674	19	.....	.....	.....	.....	.....	.....	.....	4.28	+ 0.26	1.22	0	12	13	3	15	sw.	U. S. Engineer.
Brookville	Jefferson	1,173	22	69.5	.....	93	30†	40	22	42	4.36	− 0.63	1.86	0	13	.....	.....	.....	w.	H. C. Bartholomew.
California	Washington	770	.....	73.8	.....	97	1	44	27	47	2.50	.....	0.75	0	12	13	10	8	w.	Prof. B. U. P. Cobaugh.
Clarion	Clarion	1,078	28	.....	.....	.....	.....	.....	.....	.....	4.54	− 1.03	2.50	0	8	17	2	12	w.	P. O. Miller.
Claysville	Washington	1,127	9	73.0	.....	99	1	45	7	37	8.00	.....	2.15	0	15	13	17	1	w.	E. T. Buchanan.
Confluence	Somerset	1,352	29	.....	.....	.....	.....	.....	.....	.....	4.24	− 0.97	1.10	0	10	10	6	15	.....	Grant Fyle.
Franklin	Venango	955	38	70.4	− 0.8	95	1	46	22	36	5.26	+ 0.60	1.85	0	15	20	4	7	w.	F. E. Dixon.
Freeport	Armstrong	772	40	.....	.....	.....	.....	.....	.....	.....	3.13	− 1.38	1.04	0	16	15	3	13	.....	Mrs. Anna R. Burtner.
Greensboro	Green	768	24	.....	.....	.....	.....	.....	.....	.....	6.68	+ 1.50	1.50	0	15	15	4	12	sw.	James G. Cramer.
Greensburg	Westmoreland	1,100	6	71.2	.....	92	1†	49	8†	32	6.22	.....	1.44	0	16	11	16	4	sw.	Westmoreland Water Co.
Greenville	Mercer	950	17	70.8	+ 0.3	97	1	42	22	42	3.65	− 1.49	0.67	0	14	18	12	1	nw.	A. M. Orr.
Indiana	Indiana	1,350	16	72.0	+ 1.1	96	31	44	8	41	4.52	+ 0.02	1.20	0	14	16	10	5	sw.	R. W. Wehrle.
Johnstown	Cambria	1,184	25	73.9	+ 0.6	97	1	47	8	34	3.80	− 0.87	0.86	0	14	12	16	3	s.	E. C. Lorentz.
Lock No. 4	Washington	718	27	.....	.....	.....	.....	.....	.....	.....	3.80	− 0.92	0.68	0	17	15	6	10	s.	R. T. McGowan.
Lycippus	Westmoreland	1,420	21	70.0	− 2.5	92	4	47	1	37	5.94	+ 0.86	2.11	0	11	.....	.....	.....	.....	Murray Forbes.
Mosgrove	Armstrong	775	2	.....	.....	.....	.....	.....	.....	.....	4.93	.....	1.73	0	14	15	0	16	sw.	C. J. Moore.
Pittsburgh	Allegheny	842	43	73.6	− 1.0	93	1	54	11	29	4.86	+ 0.44	1.14	0	12	14	10	7	sw.	U. S. Weather Bureau.
Ridgway	Elk	.....	0	68.7	.....	94	1	40	22	43	6.36	.....	3.25	0	11	.....	.....	.....	.....	F. J. Eagen.
Saegerstown	Crawford	1,116	22	67.7	− 1.3	92	1	42	22	38	5.64	+ 1.11	2.18	0	11	7	16	8	nw.	J. G. Apple.
Sharon	Mercer	940	2	71.0	.....	96	1	46	11†	36	3.95	.....	1.15	0	12	13	5	13	sw.	Norman S. Powell.
Somerset	Somerset	2,250	57	68.9	+ 0.3	95	1	41	8†	45	4.05	− 0.86	0.95	0	14	6	16	9	.....	W. M. Schrock.
Uniontown	Fayette	999	25	74.0	+ 0.9	95	1	50	7	30	6.55	+ 0.88	1.44	0	12	1	23	7	sw.	Wm. Hunt.
Warren	Warren	1,137	24	69.8	+ 0.4	97	1	41	23	43	3.83	− 1.56	1.50	0	10	20	0	11	sw.	Anna Simpson.
Maryland.																				
Deer Park	Garrett	2,457	20	66.4	− 0.4	91	1	38	8	40	6.80	+ 1.80	1.03	0	12	.....	.....	.....	.....	S. P. Specht.
Grantsville	....do	2,351	20	68.6	+ 0.3	92	1	43	8	39	4.54	− 0.37	1.05	0	12	10	14	7	.....	J. S. Miller.
Oakland	....do	2,461	14	68.0[e]	+ 1.4	90[b]	1†	40[e]	8	36[e]	4.92	+ 0.51	1.10	0	14	13[b]	13[b]	3[b]	w.	R. E. Weber.
West Virginia.																				
Bancroft	Putnam	574	10	.....	.....	.....	.....	54	8	.....	2.72	− 2.00	0.75	0	7	17	2	12	ne.	R. E. Dent.
Beckley	Raleigh	2,440	14	71.9[p]	+ 0.5	91	1†	.....	.....	31[p]	5.80	+ 1.95	1.50	0	8	17	6	8	w.	John A. Ewart.
Bens Run	Pleasants	622	12	75.2	0	95	1	33	8	30	7.10	+ 2.47	2.99	0	13	18	11	2	.....	J. D. Riggs.
Bluefield	Mercer	2,563	19	73.6	+ 1.9	91	1†	51	8	28	5.40	+ 1.10	1.10	0	13	14	12	5	.....	Norfolk & Western.
Buckhannon	Upshur	1,472	23	72.4	− 0.1	94	1	45	8	37	6.93	+ 1.51	1.55	0	12	21	9	1	.....	H. A. Darnall.
Cairo	Ritchie	667	11	74.8	+ 0.6	97	1	50	7	40	7.77	+ 3.48	2.15	0	15	3	22	6	nw.	Van A. Zevely.
Central Station	Doddridge	900	11	73.9	+ 0.9	96	1	49	7†	36	7.98	+ 3.68	2.71	0	15	8	21	2	w.	G. W. Sherwood.
Charleston	Kanawha	598	28	78.8	+ 2.6	95	1†	56	8	30	6.51	+ 2.54	1.95	0	11	14	13	4	w.	R. C. Hewes.
Creston	Wirt	612	12	74.7	+ 0.1	95	1	51	7†	34	3.85	+ 0.02	1.19	0	15	14	11	6	sw.	J. M. Reed.
Cuba	Jackson	544	13	75.6	+ 2.6	97	1	49	7	36	6.81	+ 2.66	2.38	0	10	6	25	0	w.	C. T. Perry.
Doane	Wayne	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. A. Smith.
Elkhorn	McDowell	1,933	21	73.2	+ 1.1	93	30	49	8	32	5.70	+ 0.27	1.55	0	14	19	8	4	sw.	J. J. Lincoln.
Elkins	Randolph	1,940	14	71.4	+ 0.9	94	1	46	8	26	8.67	+ 4.03	2.63	0	18	7	16	8	w.	U. S. Weather Bureau.
Fairmont	Marion	879	21	75.2	.....	100	1	50	7†	36	6.82	+ 1.96	1.55	0	16	27	0	4	w.	F. P. Hall.
Glenville	Gilmer	738	24	77.1	+ 2.3	100	1†	50	7	39	10.07	+ 4.67	4.48	0	10	24	7	0	w.	Joe N. Craddock.
Grafton	Taylor	985	21	75.0	+ 2.1	99	31	49	7†	39	8.25	+ 3.21	1.70	0	15	17	12	2	w.	Joseph Gerken.
Green Sulphur Springs	Summers	1,600	18	73.4	+ 0.9	95	1	45	8	40	3.64	+ 0.02	0.79	0	13	10	14	7	w.	Arthur George.
Hinton	....do	1,400	24	76.4	+ 2.1	99	1	52	8	36	4.08	+ 0.52	1.28	0	15	8	4	19	sw.	J. B. Lavender, C. E.
Holcomb	Nicholas	.....	1	71.0[a]	.....	93[a]	1	43	8	36[a]	8.42	.....	2.04	0	10	17	4	10	.....	R. E. Ferguson.
Huntington	Cabell	510	18	78.8	+ 2.3	98	1†	53	8	36	2.80	− 1.73	0.74	0	10	23	3	5	w.	L. H. Hutchinson.
Lewisburg	Greenbrier	2,200	13	72.4	+ 1.0	93	30	46	8	33	6.47	+ 2.62	3.02	0	10	31	0	0	sw.	Geo. T. Argabrite.
Logan	Logan	665	11	80.0	+ 4.8	98	30	60	7†	30	3.87	− 2.36	1.30	0	11	22	9	0	w.	Dr. J. E. McDonald.
Lost Creek	Harrison	1,033	17	71.5	− 1.1	94	1	44	8	37	6.24	+ 1.34	2.42	0	12	20	6	5	w.	Allen Smith.
Madison	Boone	704	8	77.5[a]	.....	100	1†	53[a]	7†	39[a]	2.14	− 1.61	1.25	0	6	4	27	0	.....	S. E. Bradley.
Mannington	Marion	967	11	72.2	− 0.6	94	1	47	7	32	5.26	+ 0.36	2.05	0	12	20	8	3	w.	Jas. A. Morgan.
Marlinton	Pocahontas	2,169	17	69.2	− 0.2	90	1	42	8	34	4.70	− 0.35	1.10	0	9	12	18	1	.....	C. J. McCarty.
Morgantown	Monongalia	1,250	39	74.4[e]	+ 0.8	95[e]	1	52[b]	8†	33[e]	5.80	+ 0.47	1.68	0	13	16[b]	11[b]	2[b]	w.	Horace Atwood.
Moundsville	Marshall	640	11	75.6	+ 1.5	99	1†	50	7†	36	6.05	+ 1.36	1.72	0	11	16	11	4	w.	M. L. Brown.
New Cumberland	Hancock	987	14	73.0	− 0.2	91	1	47	11†	34	6.30	+ 1.77	1.30	0	11	12	6	13	s.	Frank S. Evans.
New Martinsville	Wetzel	634	20	75.2	− 0.4	97	1	51	7	33	6.72	+ 1.80	3.15	0	10	16	12	3	s.	Wm. Ankrom.
Nuttallburg[i]	Fayette	2,252	21	68.4	.....	91	31	46	8	29	5.86	+ 1.59	1.40	0	8	11[h]	11[h]	1[h]	.....	Miss Donna Tully.
Parkersburg	Wood	638	25	77.0	+ 1.4	99	1	57	22	29	4.64	− 0.02	1.95	0	12	19	8	4	s.	U. S. Weather Bureau
Parsons	Tucker	1,662	14	70.8	+ 0.3	92	1†	45	8	33	9.95	+ 4.98	1.63	0	13	12	17	2	.....	J. W. Swisher.
Philippi	Barbour	1,192	21	74.1	+ 1.4	95	1†	46	8	36	7.03	+ 1.84	1.31	0	14	16	11	4	w.	J. D. Dadisman.
Pickens	Randolph	2,785	23	69.1[a]	+ 0.1	87[a]	1	46	9[a]	34[a]	7.08	+ 0.69	1.49	0	11	20[a]	6[a]	4[a]	w.	Dr. J. L. Cunningham.
Point Pleasant	Mason	553	23	78.6	+ 2.1	103	30	51	7†	43	2.66	− 1.52	1.04	0	9	15	10	6	se.	W. D. Holmes.
Powellton[b]	Fayette	904	16	75.8	+ 1.7	96	30	52	8	31	5.74	+ 1.17	1.56	0	11	10	10	1	.....	Morris Hansford.
Princeton	Mercer	2,469	13	68.7	+ 0.7	84	1	48	8	28	5.60	− 0.55	1.75	0	12	8	22	1	w.	H. Scott.
Robertsburg	Putnam	574	13	77.6	+ 1.8	99	30†	50	8	40	2.71	− 1.45	0.82	0	8	22	2	7	.....	E. P. Turley.
Ryan	Roane	639	10	76.4	+ 3.6	97	3†	48	8	36	9.06	+ 4.54	2.10	0	13	12	15	4	.....	Wm. E. Ryan.
Smithfield	Wetzel	919	9	73.9	.....	98	30	43	7	47	7.16	+ 1.69	2.07	0	14	20	2	9	w.	G. M. Whisler.
Spencer	Roane	710	15	74.3	.....	97	1†	50	8	36	6.70	+ 2.30	2.74	0	5	10	17	4	.....	A. M. McKown.
Sutton[a]	Braxton	839	10	78.8	.....	98	30	59	8	28	5.77	+ 1.04	1.87	0	7	14	10	6	.....	Ben Gillespie.
Terra Alta	Preston	3,207	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. B. Elliott.
Union	Monroe	.....	9	73.8[f]	+ 3.0	93	1†	54[f]	22†	32[f]	2.97	− 1.29	0.83	0	6	.....	.....	.....	.....	Shelton Clark.
Valley Fork	Clay	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Blanche Pierson.
Webster Springs	Webster	1,500	10	72.8	.....	95	1	46	8	36	5.69	.....	1.57	0	11	11	18	2	w.	D. H. Hamrick.
Wellsburg	Brooke	1,225	19	72.4[j]	+ 0.6	93[e]	1	52[j]	7†	26[j]	9.67	+ 5.15	2.04	0	13	7[e]	17[e]	2[e]	w.	C. P. Waugh.
Weston	Lewis	824	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss C. M. Davis.
Wheeling	Ohio	645	29	74.5	.....	96	30	51	7	35	5.99	+ 1.29	1.30	0	11	19	8	4	s.	Miss M. B. Forsyth.
Williamson	Mingo	660	12	76.6	+ 0.7	96	18	51	7	35	5.88	+ 1.43	1.68	0	14	15	13	3	w.	J. F. Keyser.

TABLE 1.—*Climatological data for July, 1913. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Ohio.																				
Amesville	Athens	630	9	77.1[a]	.....	100[a]	1†	46[a]	7	42[a]	7.62	.....	1.95	0	11	15	15	1	.....	F. W. Gibson.
Ashland	Ashland	1,079	13	73.8	+ 1.6	97	1	44	11	41	5.27	+ 1.76	2.65	0	13	12	4	15	w.	S. W. Brandt.
Bangorville	Richland	1,380	26	73.6	+ 1.1	96	1	47	7	34	6.29	+ 2.35	1.82	0	13	8	23	0	sw.	S. M. Painter.
Bellefontaine	Logan	1,276	34	73.8	− 0.1	96	30	45	7	36	3.56	− 0.82	0.95	0	11	20	2	9	se.	Cory L. Lane.
Bladensburg	Knox	1,100	20	71.4[a]	− 0.1	92[a]	1	42[a]	7	41[a]	9.08	+ 4.90	3.35	0	9	2	29	0	w.	Miss Mary Elliott.
Brilliant	Jefferson	700	....	71.6	.....	96	31	42	7	39	9.07	.....	1.75	0	10	23	3	5	e.	Mrs. Mary K. Pennell.
Cadiz	Harrison	1,245	9	74.0	.....	98	1	47	7	32	6.55	.....	1.95	0	13	16	12	3	.....	Harry B. McConnell.
Cambridge	Guernsey	803	21	72.4	0	94	1	47	7	34	9.33	+ 4.75	4.46	0	13	10	21	0	.....	Samuel Mehaffey.
Camp Dennison	Hamilton	570	20	77.8	+ 1.5	102	30	51	7	38	3.53	− 0.20	1.25	0	11	18	13	0	sw.	Henry F. Pinkvoss.
Canal Dover	Tuscarawas	884	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Francis L. Bixler.
Canton	Stark	1,089	30	73.0	+ 0.8	97	1	44	11	38	3.08	− 1.72	0.79	0	12	18	6	7	sw.	Carl H. Meyer.
Cardington	Morrow	1,010	18	74.0[a]	+ 1.7	95[a]	1	48[a]	7	33[a]	4.65	+ 0.69	1.31	0	7	.....	.....	.....	.....	J. W. Shaw.
Chillicothe	Ross	630	10	.....	.....	.....	.....	.....	.....	.....	4.07	.....	2.37	0	6	.....	.....	.....	.....	Marion Mackey.
Cincinnati	Hamilton	628	42	80.0	+ 2.3	101	30	60	25	27	2.37	− 1.17	0.66	0	11	10	17	4	w.	U. S. Weather Bureau.
Circleville	Pickaway	694	25	77.4	+ 2.1	102	30	50	7†	42	3.27	− 0.77	1.09	0	13	20	6	5	s.	Dr. H. R. Clarke.
Clarington	Monroe	600	10	72.8	− 0.8	98	31	47	7	35	7.21	+ 2.25	3.50	0	11	16	11	4	sw.	Col. S. Tschappat.
Columbus	Franklin	918	35	76.5	+ 1.2	97	30	54	7	30	2.88	− 0.77	0.70	0	10	17	13	1	sw.	U. S. Weather Bureau.
Coshocton	Coshocton	770	4	.....	.....	.....	.....	.....	.....	.....	7.45	.....	3.15	0	12	.....	.....	.....	.....	Mrs. Ada Jeffries.
Dayton (1)	Montgomery	899	2	76.6	+ 0.6	99	30	55	25	29	2.90	− 0.38	1.00	0	11	16	13	2	sw.	U. S. Weather Bureau.
Dayton (2)	....do	790	32	77.2	+ 1.2	103	30	49	7	36	3.72	+ 0.40	1.42	0	7	.....	.....	.....	.....	Mrs. Edith E. L. Boyer.
Delaware	Delaware	896	16	75.4	+ 1.6	98	1	47	7	40	5.75	+ 1.39	2.62	0	11	10	17	4	nw.	DeWitt H. Leas.
Demcs	Belmont	1,325	25	73.1	+ 0.2	96	1	50	7	29	6.37	+ 1.78	1.83	0	16	19	10	2	s.	J. T. Dysart.
Dennison	Tuscarawas	846	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Water Supply Co.
Frankfort	Ross	745	21	76.8	+ 2.1	100	30	50	7	37	5.18	+ 2.11	1.50	0	9	21	8	2	s.	O. A. Cory.
Gallipolis	Gallia	580	1	.....	.....	.....	.....	.....	.....	.....	1.85	.....	0.65	0	10	.....	.....	.....	sw.	Samuel F. Neal.
Garrettsville	Portage	1,005	29	69.4	− 0.2	95	1†	40	11	41	3.28	− 0.66	0.73	0	15	12	17	2	nw.	S. M. Luther.
Granville	Licking	960	31	74.3	+ 1.0	96	1†	47	7	38	6.07	+ 2.22	2.50	0	10	22	0	9	.....	Dr. L. E. Davis.
Gratiot	....do	1,000	24	73.6	+ 0.8	93	1	49	7	32	10.56	+ 5.80	3.98	0	10	16	13	2	w.	W. B. Longstreth.
Green	Adams	500	20	80.8[a]	+ 5.1	98[a]	17†	56[a]	8†	34	5.34	+ 0.69	1.90	0	6	19	10	2	w.	W. F. Kenyon.
Green Hill	Columbiana	1,135	20	69.9	− 0.5	95	1	41	11	38	5.90	+ 1.54	1.82	0	15	10	21	0	sw.	Jos. E. Bentley.
Greenville	Darke	1,060	27	75.4	+ 1.9	96	31	52	7	28	3.17	+ 0.43	0.91	0	9	20	5	6	n.	Geo. A. Katzenberger.
Hamilton	Butler	601	1	77.7	.....	103	30	51	7	39	4.13	.....	1.10	0	10	21	8	2	.....	Earl W. Stout.
Haydenville	Hocking	700	1	76.0[i]	.....	97[i]	30	50[i]	26	36[i]	3.73	.....	1.96	0	4	.....	.....	.....	.....	H. W. Stiers.
Hillsboro	Highland	1,063	34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Carey H. Rousb.
Ironton	Lawrence	575	30	79.2	+ 4.4	100	30	51	8	41	4.22	− 0.12	2.30	0	9	22	8	1	sw.	James Bull.
Kenton	Hardin	1,015	21	74.6	+ 1.2	95	1†	44	7	41	3.52	− 0.03	2.40	0	6	21	7	3	nw.	Frank B. Rarey.
Killbuck	Holmes	1,087	20	73.0	+ 0.4	95	1	48	7	34	7.42	+ 2.90	3.50	0	14	28	1	2	ne.	John A. Schonauer.
King's Mills	Warren	640	1	.....	.....	.....	.....	.....	.....	.....	3.67	.....	0.96	0	12	22	4	5	sw.	Frank M. See.
Lancaster	Fairfield	898	18	75.0	+ 1.8	97	1†	49	7	35	3.93	− 0.47	1.32	0	8	23	6	2	sw.	R. L. Renshaw.
McConnellsville	Morgan	710	29	74.3	+ 0.6	96	1	49	7	31	10.27	+ 5.92	3.24	0	14	12	12	7	sw.	C. H. Morris.
Marietta	Washington	627	93	76.2	+ 2.3	98	1	52	7	34	9.35	+ 4.72	4.31	0	15	10	15	6	n.	Prof. T. D. Biscoe.
Marion	Marion	980	35	75.0	+ 1.1	97	1†	47	7	40	4.94	+ 0.58	1.80	0	9	9	20	2	nw.	Dr. E. H. Raffensperger.
Milfordton	Knox	1,200	21	73.6	+ 1.3	98	31	45	7	37	8.20	+ 4.14	2.90	0	11	19	10	2	sw.	L. H. Burgess.
Milligan	Perry	875	20	73.8	0	100	1	44	7	42	10.25	+ 6.23	3.56	0	11	4	27	0	sw.	V. C. Eveland.
Millport	Columbiana	1,145	20	71.0	− 0.4	96	1	43	11	37	7.97	+ 3.69	2.59	0	14	7	23	1	sw.	G. F. Copeland.
Nellie	Coshocton	850	13	72.4	− 0.8	97	1†	46	7†	40	4.48	+ 0.54	1.47	0	10	17	14	0	w.	Ethel L. Gammertsfelder.
New Berlin	Stark	1,100	20	72.0	− 0.8	97	31	41	11	41	4.14	− 0.06	1.00	0	12	18	12	1	n.	Clayton Holl.
New Waterford	Columbiana	1,053	18	72.4	+ 0.8	98	3†	45	8†	44	5.17	+ 0.54	1.00	0	11	14	14	3	sw.	Sam C. Scott.
O. S. University	Franklin	757	30	76.3	+ 2.8	97	1†	49	7	34	3.05	− 0.21	0.63	0	10	7	13	11	s.	Prof. H. C. Lord.
Oregonia	Warren	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. H. Stephens.
Pataskala	Licking	1,015	21	74.6	+ 1.0	97	1	45	7	39	4.35	+ 0.29	1.47	0	12	9	22	0	w.	J. N. Ridenour.
Peebles	Adams	645	2	75.6	.....	100	30†	46	7	42	5.80	.....	1.97	0	11	19	9	3	nw.	Ora O. Smalley.
Philo	Muskingum	1,018	18	75.0	+ 0.4	97	1	52	7†	31	11.00	+ 6.36	6.48	0	13	11	18	2	sw.	L. C. Burckholter.
Piqua	Miami	847	3	.....	.....	.....	.....	.....	.....	.....	4.15	.....	1.03	0	9	19	5	7	sw.	Harry L. Roberts.
Plattsburg	Clark	1,130	20	74.8	+ 1.1	103	29	47	7	34	3.28	− 0.72	0.76	0	7	15	16	0	n.	F. E. Stewart.
Portsmouth	Scioto	527	82	78.9	+ 2.2	100	30	51	11	38	4.08	+ 0.05	0.87	0	14	7	2	22	sw.	Dr. H. A. Schirrmann.
Prospect	Marion	909	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Neil J. Gast.
Sidney	Shelby	985	30	75.6[a]	+ 0.6	100	31	50[a]	25	39[a]	3.90	+ 0.26	1.01	0	12	19	7	5	sw.	Hamline B. Blake.
Somerset	Perry	1,080	14	75.9	+ 0.9	99	30	52	7†	34	5.59	+ 1.50	2.30	0	13	23	4	4	n.	Miss M. W. C. Sheridan.
Springfield	Clark	980	19	.....	.....	.....	.....	.....	.....	.....	4.55	+ 0.03	1.01	0	12	10	20	1	s.	W. A. Webster.
Summerfield	Noble	1,187	7	73.3	.....	96	1	47	7	38	11.04	.....	4.51	0	14	8	21	2	sw.	H. R. McClintock.
Syracuse	Meigs	583	2	77.8	.....	102	30	50	7	43	7.33	.....	3.65	0	12	17	13	1	.....	Irving R. Karr.
Thurman	Gallia	696	20	77.7	+ 2.0	100	30	50	8†	39	1.71	− 2.03	0.60	0	4	9	18	4	.....	D. D. Thomas.
Toboso	Licking	.....	.....	74.8[a]	.....	98[a]	1	48	7	37[a]	11.46	.....	7.55	0	10	20	10	1	sw.	H. A. Albyn.
Urbana	Champaign	1,031	45	75.6	+ 2.2	101	30	48	7	38	3.62	− 0.79	0.91	0	11	14	17	0	nw.	Prof. J. H. Williams.
Warren	Trumbull	900	24	72.2	− 0.2	96	1	45	11	38	3.51	− 0.86	0.96	0	11	13	11	7	sw.	M. D. McCorkle.
Waverly	Pike	590	30	76.2	+ 0.6	100	30	51	7†	36	2.90	− 0.97	1.21	0	10	14	5	12	s.	Dr. Peru Hutt.
Waynesville	Warren	700	28	75.5	+ 1.6	99	30	52	7	30	2.86	+ 0.37	0.78	0	8	15	15	1	sw.	Charles Michener.
Wooster	Wayne	1,030	34	72.4	+ 0.9	95	1	42	11	40	4.07	− 0.43	0.84	0	16	19	11	1	sw.	Experiment Station.
Youngstown	Mahoning	846	20	.....	.....	.....	.....	.....	.....	.....	4.11	+ 0.50	1.08	0	12	22	2	7	sw.	J. M. Dickey.
Zanesville	Muskingum	700	26	.....	.....	.....	.....	.....	.....	.....	13.12	+ 8.97	6.70	0	13	21	1	9	s.	S. G. Sprague.
Indiana.																				
Anderson	Madison	892	18	75.4	+ 1.1	97	31	50	25	32	5.89	+ 2.34	2.61	0	10	21	9	1	sw.	W. H. Stanton.
Attica	Fountain	522	3	.....	.....	.....	.....	.....	.....	.....	2.58	.....	0.79	0	11	.....	.....	.....	.....	J. Frederic Connell.
Bloomington	Monroe	744	18	79.8	+ 3.5	108	30	52	25	38	3.13	− 0.72	1.07	0	9	18	9	4	sw.	Earl E. Ramsey.
Bluffton	Wells	835	18	76.4	+ 2.5	97	31	44	23	38	8.83	+ 5.29	1.80	0	10	17	8	6	sw.	George R. Rinehart.
Butlerville	Jennings	767	28	79.8	+ 3.9	103	30†	53	25	33	2.55	− 1.03	0.64	0	8	25	6	0	.....	C. F. Hole.
Cambridge City	Wayne	941	22	75.1	+ 1.5	101	30	48	25	38	6.71	+ 3.11	1.65	0	13	25	0	6	s.	Heze Barnett.
Columbus	Bartholomew	632	30	79.6	+ 4.2	106	30	50	25	39	1.65	− 1.42	0.88	0	7	22	5	4	sw.	John A. Perry.
Connersville	Fayette	769	31	78.5	+ 4.2	104	31	50	25	39	2.22	− 1.09	0.90	0	4	23	8	0	sw.	H. T. Swindler.
Crawfordsville	Montgomery	780	3	78.3	.....	104	30†	47	25	38	1.40	.....	0.36	0	6	16	15	0	w.	P. H. Burns.
Delphi	Carroll	668	28	77.0	+ 2.7	102	30	47	25	38	3.30	− 0.49	1.81	0	6	18	9	4	.....	L. A. Higginbotham.
Evansville	Vanderburg	386	37	81.4	+ 2.1	102	18	62	21	28	1.35	− 2.46	0.78	0	6	14	15	2	sw.	U. S. Weather Bureau.
Farmersburg	Sullivan	.....	.....	79.1	+ 3.1	102	30	51	25	37	2.14	− 2.11	1.45	0	8	4	26	1	sw.	Miss Carrie Yeager.
Farmland	Randolph	1,101	31	75.2	+ 1.8	96	31	52	7	32	4.94	+ 1.53	1.21	0	12	15	5	11	sw.	Ralph E. Lyst.
Forest Reserve	Clark	478	....	79.7	.....	105	17†	55	7†	37	1.55	.....	0.46	0	5	20	10	1	.....	Ambrose Waltman.
French Lick	Orange	506	....	78.8	.....	101	18	52	11	41	1.04	.....	0.35	0	7	21	10	0	sw.	U. S. Weather Bureau.
Greenfield	Hancock	905	10	76.4	.....	98	30	50	26	38	6.14	.....	2.25	0	8	0	29	2	s.	Frank Larrabee.
Greensburg	Decatur	954	17	78.3	+ 2.7	101	30	56	25	32	3.97	− 0.39	1.20	0	10	14	13	4	sw.	C. C. Morrison, M. D.
Hickory Hill	Brown	.....	.....	79.8	.....	102	31	56	25†	36	2.51	.....	1.79	0	6	25	6	0	.....	Benjamin W. Douglass.

TABLE 1.—*Climatological data for July, 1913. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Indiana—Continued.																				
Huntingburg	Dubois	462	5	79.8	.....	104	28†	50	6	48	1.92	.....	0.86	0	5	...	...	...	.....	H. Dufendach.
Huntington	Huntington	741	20	75.8	+ 1.6	97	28†	52	25	35	6.73	+ 3.09	2.30	0	11	17	13	1	sw.	Chas. McGrew.
Indianapolis	Marion	822	41	77.9	+ 1.7	102	30	54	25	29	3.88	— 0.25	1.94	0	12	8	21	2	sw.	U. S. Weather Bureau.
Jeffersonville	Clark	455	31	81.3	+ 3.5	104	18	58	25	30	1.92	— 2.02	0.57	0	7	16	13	2	w.	John C. Loomis.
Judyville	Warren	450	6	77.2	.....	104	30	46	25	44	3.40	.....	1.23	0	8	15	16	0	sw.	W. A. Hill.
Kokomo	Howard	840	21	74.8	+ 0.2	99	30†	45	25	36	3.22	— 0.23	0.85	0	9	17	13	1	sw.	P. H. Robertson.
La Fayette	Tippecanoe	617	34	77.7	+ 3.2	102	30	52	25	33	2.20	— 1.59	0.56	0	9	26	3	2	sw.	Wm. J. Jones, jr.
Logansport	Cass	620	33	77.6	+ 2.2	100	30†	50	25	38	3.72	+ 0.43	1.24	0	7	23	1	7	e.	Chas. Massena.
Madison	Jefferson	460	21	81.2	+ 3.6	105	17	55	25	35	2.49	— 1.10	0.83	0	8	17	12	1	sw.	Miss F. Cooperider.
Marengo	Crawford	363	31	78.2	+ 2.0	104	18	52	21†	39	2.99	— 1.28	1.67	0	6	14	11	6	sw.	J. M. Johnson.
Marion	Grant	814	27	76.4	+ 2.3	100	31	51	25†	35	5.75	+ 2.70	1.53	0	11	18	4	9	s.	James F. Hood.
Mauzy	Rush	980	33	75.4	+ 1.9	99	30†	47	25	35	3.42	+ 0.18	0.83	0	12	8	21	2	sw.	Elwood Kirkwood.
Monticello	White	674	3	.....	.....	...	...	...	...	...	3.38	.....	1.23	0	7	25	5	1	w.	J. E. Loughry.
Moores Hill	Dearborn	980	12	78.7	+ 3.8	101	30†	52	25	34	3.14	+ 0.24	1.07	0	7	21	8	2	sw.	W. S. Bigney.
Mount Vernon	Posey	410	27	81.3	+ 2.7	103	17†	58	21†	35	2.77	— 1.54	1.05	0	5	20	7	4	sw.	Guy B. Green.
Nashville	Brown	.....	...	77.6[a]	.....	99[a]	17	49[a]	25	44[a]	2.14	.....	0.94	0	7	18[a]	7[a]	5[a]	sw.	W. C. Goble.
Paoli	Orange	611	16	78.6	+ 1.9	108	30	48	21	44	1.01	— 2.40	0.32	0	7	17	14	0	sw.	James A. Gillum.
Princeton	Gibson	481	31	81.0	+ 3.9	105	18	56	21†	36	1.53	— 1.86	0.60	0	5	22	8	1	sw.	Albert Mills.
Richmond	Wayne	972	28	74.8	+ 1.0	97	31	48	7	35	4.58	+ 0.91	1.15	0	13	11	14	6	.....	Walter Vossler.
Rochester	Fulton	775	8	74.0	.....	94	30	52	25	28	5.50	.....	2.16	0	8	19[a]	8[a]	3[a]	.....	G. P. Keith.
Rockville	Parke	722	27	79.5	+ 4.8	105	30	50	25	39	0.86	— 2.87	0.35	0	7	9	21	1	sw.	C. A. Lee.
Rome	Perry	370	10	82.5	+ 4.3	108	30	56	21†	42	1.62	— 3.08	1.20	0	5	25	5	1	sw.	Adam Anspach.
Salamonia	Jay	950	8	73.8	.....	98	31	44	7	38	7.12	.....	2.02	0	13	11	19	1	nw.	S. A. Armstrong.
Salem	Washington	717	20	79.1	+ 2.4	104	30	54	22†	39	2.12	— 1.25	0.70	0	10	9	22	0	sw.	Emmet S. Allen.
Scottsburg	Scott	570	19	80.8	+ 3.2	108	30	56	21†	38	1.06	— 2.69	0.35	0	7	17	13	1	sw.	Frank H. Park.
Seymour	Jackson	610	26	81.4	+ 5.3	107	30	52	25	38	1.14	— 2.50	0.51	0	7	15	15	1	sw.	J. Thomas Hays.
Shelbyville	Shelby	768	9	77.5	.....	103	30	46	25	34	4.19	.....	1.90	0	9	10	21	0	sw.	Edgar G. Hodson.
Shoals	Martin	523	6	80.2	.....	104	30†	55	21	37	2.53	.....	0.74	0	8	21	4	6	.....	Rev. G. Halleck Rowe.
Terre Haute	Vigo	498	23	79.8	+ 2.4	101	17	54	25	30	0.91	— 2.45	0.44	0	8	6	22	3	sw.	U. S. Weather Bureau.
Veedersburg	Fountain	612	14	78.0	+ 3.0	105	30	46	25	43	0.82	— 2.65	0.16	0	13	21[a]	8[a]	1[a]	sw.	L. A. Culver, jr.
Vevay	Switzerland	525	32	82.2	+ 5.0	102	30	59	25	28	3.75	— 0.36	1.45	0	7	3	22	6	sw.	Miss Frederica Boerner.
Vincennes	Knox	431	21	81.2	+ 3.1	105	30	58	25	36	3.25	— 1.10	1.00	0	7	22	1	8	sw.	Garrett V. List.
Washington	Daviess	484	17	81.6	+ 4.6	105	30	56	21	37	1.16	— 2.76	0.38	0	5	12	16	3	sw.	Charles C. Feagans.
Whitestown	Boone	529	5	77.2	.....	99	30	55	25	42	3.60	.....	2.25	0	10	2	29	0	sw.	Clyde O. Laughner.
Winona Lake	Kosciusko	865	6	74.8	.....	97	3	47	7	37	4.65	.....	0.88	0	12	4	27	0	sw.	Rev. Albert A. Young.
Worthington	Greene	526	31	81.2[b]	+ 6.0	103[a]	17	54[a]	24	35[a]	2.24	— 1.80	1.17	0	6	5[a]	25[a]	0[a]	sw.	D. W. Solliday.
Illinois.																				
Albion	Edwards	531	22	80.4	+ 2.1	102	18†	55	21	34	3.13	— 0.86	2.40	0	5	21	10	0	w.	B. F. Michels.
Casey	Clark	645	10	.....	.....	...	...	...	...	...	2.99	— 1.31	2.35	0	3	15	13	3	sw.	Wm. Chenoweth.
Charleston	Coles	720	28	79.9	+ 3.5	103	17†	49	25	39	0.75	— 3.13	0.24	0	10	8	22	1	n.	Jacob B. Daisy.
Danville	Vermilion	604	12	79.1	+ 2.5	105	30	50	25	37	1.08	— 1.88	0.35	0	9	24	4	3	sw.	J. J. Lemon.
Equality	Gallatin	421	15	82.7	+ 3.8	106	18	57	22	39	2.35	— 2.26	1.02	0	5	20	11	0	s.	Dr. L. W. Gordon.
Fairfield	Wayne	450	20	81.8	+ 3.9	107	18	54	22	40	1.41	— 2.37	0.40	0	7	11	20	0	s.	Geo. A. Tromly.
Flora	Clay	495	27	81.6	+ 4.8	106	18†	54	21†	43	1.77	— 2.74	0.51	0	7	16	15	0	sw.	W. L. Hanna.
Golconda	Pope	500	35	80.4	+ 1.8	103	18	55	22	40	3.69	— 0.07	1.50	0	6	12	15	4	sw.	Dr. D. Lawrence.
Hoopeston	Vermilion	715	11	77.2	+ 3.1	104	30	48	25	39	2.58	— 1.64	0.74	0	9	26	3	2	.....	S. F. Hoskinson.
McLeansboro	Hamilton	462	30	81.0	+ 3.2	104	30	56	22†	40	1.40	— 1.83	1.06	0	4	...	...	...	.....	T. W. Biggerstaff.
Metropolis	Massac	346	2	.....	.....	...	...	...	...	...	4.86	.....	2.65	0	8	17	8	6	s.	Henry H. Humma.
Montrose	Effingham	599	3	80.0	.....	107	30	51	21†	44	1.34	.....	0.65	0	7	19	12	0	sw.	J. C. Spitler.
Mount Carmel	Wabash	424	12	80.4	+ 3.3	102	18	58	21†	29	1.84	— 1.34	0.60	0	7	...	...	...	.....	Mrs. H. M. Phillips.
New Burnside	Johnson	613	18	79.4	+ 0.7	101	18	51	22	40	5.55	+ 1.06	1.80	0	9	20	2	9	sw.	Thos. H. McCabe.
Newton	Jasper	484	2	.....	.....	...	...	...	...	...	1.62	.....	0.59	0	6	23	8	0	.....	J. M. Hicks.
Olney	Richland	486	26	80.5	+ 2.6	106	18	52	21	43	2.18	— 1.53	0.92	0	5	18	13	0	sw	J. T. Ratcliff.
Palestine	Crawford	500	31	79.4	+ 2.9	102	17†	54	7†	35	3.44	— 0.47	1.39	0	7	18	13	0	sw.	Duane Shaw.
Paris	Edgar	600	20	79.8	+ 3.8	105	30	48	25	43	2.92	— 0.57	2.35	0	5	...	...	...	.....	H. P. Twyman.
Philo	Champaign	700	29	78.6	+ 3.8	105	30	47	25[a]	39[a]	0.38	— 3.33	0.38	0	1	23	7	1	sw.	H. A. Burr.
Rileyville	Saline	400	16	.....	.....	...	...	...	...	...	3.81	+ 0.54	1.29	0	6	7	16	8	s.	W. H. Thornberry.
Shawneetown	Gallatin	307	3	.....	.....	...	...	...	...	...	1.96	.....	0.72	0	7	...	...	...	.....	Mrs. Mary O. Spivey.
Tuscola	Douglas	644	20	.....	.....	...	...	...	...	...	0.73	— 2.92	0.43	0	6	13	17	1	sw.	Joseph O'Neal.
Urbana	Champaign	751	11	78.2	+ 4.1	103	30	51	25	36	1.52	— 2.05	0.76	0	8	9	22	0	sw.	University of Illinois.
Kentucky.																				
Alpha	Clinton	.....	19	78.4	+ 2.2	96	18	57	7	26	4.20	— 1.50	2.20	0	6	18	5	8	s.	W. W. Hicks..
Anchorage	Jefferson	700	12	79.3	+ 3.2	105	18	54	21	37	2.62	— 2.18	0.90	0	5	23	6	2	sw.	C. E. Barrett.
Bardstown	Nelson	637	16	81.9[b]	+ 3.7	106[c]	18†	58	21†	39	0.71	— 4.28	0.27	0	4	23	2	6	s.	T. S. Talbott.
Beattyville	Lee	650	9	78.9	+ 3.4	104	18	54	22	38	2.32	— 3.08	0.78	0	8	8	13	10	e.	G. W. Cann.
Beaver Dam	Ohio	441	10	81.0	+ 3.8	105	18	54	22	42	2.18	— 2.87	0.80	0	6	14	10	7	s.	W. T. Austin.
Berea	Madison	1,070	12	80.0	+ 3.8	104	30	54	21	37	3.76	— 0.79	2.20	0	8	22	9	0	sw.	C. F. Rumold.
Blandville	Ballard	445	32	79.1	+ 1.2	95	1†	61	22	26	6.67	+ 2.78	3.05	0	6	12	13	6	sw.	E. W. Horr.
Bowling Green	Warren	500	24	80.8	+ 1.8	103	18	58	22	37	3.62	— 0.72	1.55	0	5	25	6	0	s.	Mrs. L. G. Causey.
Burnside	Pulaski	773	22	.....	.....	...	...	...	...	...	2.72	— 2.21	1.60	0	5	...	...	...	.....	K. W. Massey.
Calhoun	McLean	397	10	80.8	+ 3.8	102	18†	57	22	33	3.63	— 1.79	1.23	0	4	10	21	0	sw.	W. A. Taylor.
Cattlettsburg	Boyd	544	24	.....	.....	...	...	...	...	...	3.36	— 0.74	0.60	0	13	...	...	...	.....	Mrs. Mertie M. Bruns.
Earlington	Hopkins	370	23	82.6	+ 4.7	105	16	54	22	46	3.45	— 0.85	2.08	0	5	21	6	4	s.	Brick Southworth.
Edmonton	Metcalfe	600	22	79.0	+ 3.3	101	18†	55[a]	22	37	2.10	— 2.89	0.87	0	6	17	12	2	.....	Miss Lee Ray.
Eubank	Pulaski	1,177	19	78.1	+ 3.4	101	18	54	21	33	2.22	— 2.41	0.80	0	5	13	10	8	s.	Mrs. Katie Payne.
Falmouth	Pendleton	530	24	.....	.....	...	...	...	...	...	2.85	— 1.06	0.61	0	11	15	12	4	w.	J. V. Oldham.
Farmers	Rowan	668	6	76.6	.....	101	30†	48	7	35	2.97	.....	0.95	0	8	24	5	2	w.	Lee Craycraft.
Frankfort	Franklin	560	22	80.6	+ 4.2	102	18	58	7†	31	1.77	— 2.20	0.54	0	7	17	8	6	s.	J. H. Roberts.
Franklin	Simpson	691	19	81.0	+ 3.5	99	18	60	22	32	2.78	— 1.33	1.67	0	4	1	30	0	sw.	J. E. Newman.
Greensburg	Green	581	21	81.8	+ 5.4	109	18	51	7	43	0.70	— 3.99	0.58	0	3	10	3	8	sw.	Mrs. Bettie K. H. Alcorn.
High Bridge	Jessamine	762	10	.....	.....	...	...	...	...	...	0.94	— 3.50	0.46	0	6	...	...	...	.....	Miss Lulu Wood.
Hopkinsville	Christian	524	17	81.8	+ 3.3	106	18	58	22	41	2.52	— 1.79	1.50	0	6	16	6	9	se.	W. F. Randle.
Irvington	Breckenridge	.....	15	80.6	+ 3.5	102	18†	58	21†	32	1.49	— 1.94	0.94	0	4	21	8	2	sw.	W. J. Piggott
Leitchfield	Grayson	635	17	80.1	+ 3.7	103	30	58	21†	35	1.07	— 3.45	0.45	0	5	20	11	0	sw.	J. E. Stone.
Lexington	Fayette	989	25	78.2	+ 1.6	99	30	58	21	27	2.43	— 2.01	1.09	0	10	12	16	3	sw.	U. S. Weather Bureau.
Loretto	Marion	681	16	.....	.....	...	...	53	22	...	1.53	— 2.63	1.00	0	5	24	5	2	.....	Loretto Academy.
Louisa	Lawrence	.....	0	.....	.....	...	...	...	...	...	3.93	.....	1.12	0	11	...	...	...	.....	Lucien S. Johnson.
Louisville (1)	Jefferson	525	41	81.2	+ 2.8	104	18	59	25	26	1.48	— 2.26	0.49	0	7	16	12	3	sw.	U. S. Weather Bureau.
Louisville (2)	....do	.....	3	80.7	.....	102	17†	56	25	34	1.49	.....	0.53	0	9	15	14	2	s.	W. I. Hunt.

TABLE 1.—*Climatological data for July, 1913. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
***Kentucky*—Contd.**																				
Marion	Crittenden		18	80.4	+ 2.6	100	30	62	8†	32	2.24	− 1.69	0.91	0	4	18	10	3	w.	B. C. Paris.
Maysville	Mason	524	16	78.8	+ 1.8	104	30	53	7	40	3.20	− 1.31	0.79	0	14	16	12	3	se.	Mrs. Mary D. Marsh.
Middlesboro	Bell	1,128	18	77.5	+ 3.0	100	18	53	22	36	1.08	− 4.80	0.34	0	7	14	17	0	.....	B. H. Perkins.
Mount Sterling	Montgomery	930	23	79.8	+ 4.2	102	18	58	7	32	2.89	− 2.12	0.58	0	10	21	9	1	s.	James O'Connell.
Owensboro	Daviess	479	16	81.8	+ 4.0	102	18	61	7†	31	1.12	− 3.01	0.55	0	3	14	12	5	s.	Henry S. Berry.
Paducah	McCracken	341	24	.....	.....	.....	.....	.....	.....	.....	5.78	+ 1.84	2.30	0	7	.....	.....	.....	.....	S. A. Fowler.
Pikeville	Pike		5	.....	.....	.....	.....	.....	.....	.....	5.10	.....	1.50	0	13	.....	.....	.....	.....	I. M. Williams.
Richmond	Madison	926	21	80.6	+ 4.0	102	18	59	7†	32	3.07	− 0.80	1.63	0	9	20	5	6	e.	J. W. Crooke.
St. John	Hardin	777	17	80.0	+ 4.7	106	18	55	21	39	0.35	− 3.28	0.25	0	3	21	6	4	.....	Bethlehem Academy.
Scott	Kenton	.....	15	78.8	+ 2.1	102	30	55	7	38	2.62	− 0.99	0.75	0	9	13	17	1	sw.	E. B. Wilson.
Shelby City	Boyle	1,087	19	79.1	+ 4.1	103	30	52	7†	41	1.37	− 2.86	0.47	0	7	22	8	1	sw.	H. F. Ewing.
Shelbyville	Shelby	759	24	.....	.....	.....	.....	.....	.....	.....	1.75	− 2.45	0.60	0	4	26	1	4	s.	C. R. Burnett.
Taylorsville	Spencer	489	11	80.0	+ 4.2	104	18	55	7	35	1.59	− 3.25	0.83	0	7	16	14	1	sw.	E. D. Bourne.
Williamsburg	Whitley	939	17	79.4	+ 2.6	105	18	54	7†	36	1.82	− 4.38	0.45	0	6	22	1	8	e.	N. C. Jones.
Williamstown	Grant	943	11	77.4	+ 2.3	100	30	55	7†	35	3.64	− 0.80	0.60	0	12	16	8	7	.....	Miss Rose Carter.
Tennessee.																				
Ashwood	Maury	725	40	80.7	+ 2.6	100	1†	56	8	44	2.75	− 1.69	2.00	0	4	5	17	9	s.	Mrs. Joseph W. Fleming.
Benton	Polk	880	29	79.6	+ 2.6	102	18	52	8	42	3.42	− 1.24	0.98	0	8	7	17	7	sw.	George L. Williams.
Birds Bridge	Greene	.....	7	.....	.....	.....	.....	.....	.....	.....	3.76	.....	1.48	0	10	21	3	7	w.	David B. George.
Bluff City	Sullivan	.....	18	.....	.....	.....	.....	.....	.....	.....	2.20	− 2.79	0.83	0	8	17	6	8	e.	Walter C. Masengill.
Byrdstown	Pickett	1,026	21	81.4	+ 5.5	100	18	59	8	35	2.93	− 2.62	0.95	0	7	3	20	8	s.	John Lacy.
Carthage	Smith	500	30	81.3	+ 3.9	103	18	60	7	34	2.58	− 1.81	1.38	0	5	18	2	11	se.	Earl C. Pickering.
Cedar Hill	Robertson	625	15	81.6	+ 2.7	103	18†	59	22	38	3.02	− 0.44	1.20	0	6	21	9	1	s.	J. Frank Ruffin.
Celina	Clay	494	10	.....	.....	.....	.....	.....	.....	.....	1.43	− 3.50	0.57	0	6	22	1	8	s.	Charles M. Anderson.
Charleston	Bradley	709	29	.....	.....	.....	.....	.....	.....	.....	2.24	− 3.10	0.60	0	12	20	0	11	s.	John T. Weeks.
Chattanooga	Hamilton	808	34	80.8	+ 3.0	98	18	65	12	26	4.40	+ 0.53	1.54	0	9	7	14	10	sw.	U. S. Weather Bureau.
Clarksville	Montgomery	500	53	81.8	+ 4.5	104	18†	56	22	40	2.43	− 1.52	1.22	0	5	18	3	10	sw.	Prof. James A. Lyon.
Clinton	Anderson	800	29	.....	.....	.....	.....	.....	.....	.....	3.84	− 1.89	2.10	0	8	19	1	11	sw.	H. C. Slover.
Crossville	Cumberland	1,895	1	77.2	.....	96	18	54	7†	37	2.16	.....	0.60	0	10	15	14	2	.....	J. E. Converse.
Dandridge	Jefferson	.....	8	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.24	0	5	18	5	8	w	James E. Swann.
Decatur	Meigs	850	18	80.7	+ 3.1	104	18†	57	8	39	4.49	− 0.58	1.52	0	10	15	13	3	sw.	J. Worth Lillard.
Dickson	Dickson	800	20	78.7	+ 1.1	100	10	58	8	36	3.17	− 0.85	1.00	0	5	21	9	1	s.	Nathan R. Sugg.
Dover	Stewart	500	17	80.8	+ 2.4	103	18	56	22	38	1.35	− 1.97	0.68	0	3	16	13	2	s.	Asa M. Tippit.
Dunlap	Sequatchie	726	4	80.4	.....	101	18†	56	8†	42	4.65	.....	1.45	0	10	6	23	2	.....	S. Bradford Boyd.
Elizabethton	Carter	1,575	22	.....	.....	.....	.....	.....	.....	.....	7.87	+ 3.19	1.30	0	15	.....	.....	.....	.....	Charles Boyd.
Erasmus	Cumberland	1,850	16	74.0	+ 1.8	97	18	50	7†	41	4.63	− 1.24	1.55	0	8	15	15	1	se.	Mrs. Sarah E. Ashley.
Florence	Rutherford	560	31	80.3	+ 2.8	96	1†	61	8	33	1.87	− 2.40	1.24	0	5	17	12	2	s.	Erastus P. Bell.
Franklin	Williamson	648	25	79.4	+ 2.1	98	30	58	8†	34	2.70	− 1.07	0.80	0	5	16	3	12	.....	Young M. Riser.
Halls Hill	Rutherford	.....	10	.....	.....	.....	.....	.....	.....	.....	3.47	− 2.31	1.60	0	7	22	0	9	s.	Edward F. Wright.
Hohenwald	Lewis	983	30	79.4	+ 2.9	100	4†	56	8	43	6.69	+ 1.94	3.00	0	10	14	15	2	nw.	Mrs. Mary Lutzelman.
Iron City	Lawrence	600	18	79.2	+ 1.5	101	5	55	8	44	3.11	− 0.89	2.11	0	5	8	22	1	sw.	Capt. H. Paul Seavy.
Jefferson City	Jefferson	.....	3	.....	.....	.....	.....	.....	.....	.....	2.37	.....	0.86	.....	6	.....	.....	.....	.....	Calvin C. Maddox.
Johnson City	Washington	1,620	20	78.6	+ 4.1	99	2	54	8	36	2.46	+ 2.54	0.68	0	7	27	4	0	w.	Ward Crosby.
Johnsonville	Humphreys	364	29	80.1	+ 1.3	99	18	56	22	38	4.63	+ 0.50	1.20	0	11	10	17	4	s.	Miss Sallie B. Mathews.
Kingston	Roane	.....	29	.....	.....	.....	.....	.....	.....	.....	2.54	− 2.36	0.68	0	8	17	0	14	s.	Henry Crumbliss.
Knoxville	Knox	977	42	80.1	+ 3.9	100	18	62	8	25	3.77	− 0.44	1.07	0	12	5	19	7	sw.	U. S. Weather Bureau.
Lebanon	Wilson	522	4	81.1	.....	101	18	59	7†	34	3.35	.....	1.80	0	5	16	4	11	s.	H. Logan Fields.
Lewisburg	Marshall	727	19	80.7	+ 2.3	102	19	56	8	41	1.81	− 3.04	0.95	0	7	12	17	2	sw.	Dr. Robert D. Crutcher.
Liberty	Dekalb	672	16	.....	.....	.....	.....	.....	.....	.....	3.89	.....	1.29	0	5	23	0	8	s.	Bratten Evans.
Loudon	Loudon	816	22	80.6	.....	103	18	57	8	33	1.90	− 3.76	1.02	0	6	16	4	11	w.	Robert W. Clark.
Lynnville	Giles	770	26	80.0	+ 2.7	98	18	59	8	36	3.81	− 1.45	1.15	0	6	7	24	0	s.	Col. James H. Burrow.
McGhee	Monroe	.....	8	.....	.....	.....	.....	.....	.....	.....	3.78	.....	0.89	0	10	25	0	6	s.	Miss Alice L. Headrick.
McMinnville	Warren	1,011	32	79.8	+ 3.4	100	19	53	7	42	1.79	− 3.62	0.44	0	9	16	10	5	s.	Horace H. Stiles.
Maryville	Blount	1,050	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Sam T. Broyles.
Mountain City	Johnson	2,486	16	72.0	+ 1.9	92	18	45	8	34	3.70	− 2.38	0.66	0	11	15	16	0	.....	Edward E. Barry.
Nashville	Davidson	654	42	81.5	+ 2.1	98	18	63	22	30	4.09	− 0.26	2.49	0	6	11	8	12	w.	U. S. Weather Bureau.
Newport	Cocke	1,280	23	78.8	+ 2.3	102	19	57	8	29	1.80	− 2.93	0.68	0	7	9	11	11	sw.	Dr. Charles T. Burnett.
New River	Scott	1,215	5	.....	.....	.....	.....	.....	.....	.....	2.14	.....	0.46	0	7	25	2	4	sw.	Burl W. Buttram.
Palmetto	Bedford	770	23	81.1	+ 2.9	102	19	58	8	38	1.78	− 3.49	0.70	0	7	15	14	2	sw.	Mrs. Ross Woods.
Perryville	Decatur	387	17	80.4	.....	101	18†	57	22	37	4.76	+ 1.01	1.93	0	8	11	14	6	.....	Oliver C. Kirksey.
Pinewood	Hickman	.....	7	80.4	.....	102	29	55	8†	45	4.18	.....	1.50	0	6	17	14	0	s.	Miss Carrie Cash.
Rogersville	Hawkins	1,150	29	78.4	+ 3.8	100	18	55	8	30	3.04	− 1.86	0.95	0	8	15	13	3	w.	Fred Beal.
Rugby	Morgan	1,410	24	77.8	+ 3.8	100	18	53	7	39	2.44	− 2.96	0.65	0	7	10	11	10	nw.	Samuel G. Wilson.
Savannah	Hardin	442	30	80.8	+ 1.9	99	18†	60	8	38	3.54	− 0.90	1.30	0	6	12	14	5	s.	W. H. Carrington.
Sevierville	Sevier	.....	7	80.1	.....	101	18	58	21	31	4.22	.....	1.40	0	10	5	9	17	sw.	Herbert O. Eckel.
Sewanee	Franklin	2,000	19	.....	.....	.....	.....	.....	.....	.....	5.16	+ 0.02	1.46	0	8	8	15	8	s.	University of the South.
Sparta	White	920	7	79.2	.....	100	18	58	7†	35	4.69	.....	1.75	0	8	7	16	8	w.	Ernest H. Hull.
Springville	Henry	377	11	79.4	+ 1.9	101	29	54	22	38	2.98	− 1.72	2.57	0	9	17	11	3	s.	Hudnall A. Boden.
Tazewell	Claiborne	1,350	16	77.6	.....	103	18	51	7	40	1.76	− 2.99	0.37	0	6	17	4	10	sw.	J. Caloway Carr.
Tullahoma	Coffee	1,075	26	78.8	+ 2.5	98	18†	58	8	37	3.63	− 1.03	1.21	0	9	8	20	3	s.	Reuben T. Moore.
Walling	White	909	9	.....	.....	.....	.....	.....	.....	.....	3.10	.....	1.15	0	9	17	11	3	sw.	John K. Roberts.
Waynesboro	Wayne	753	28	79.0	+ 2.4	99	18	56	8	41	3.37	− 1.21	0.64	0	10	3	24	4	s.	Harry C. Boyd.
Wildersville	Henderson	400	17	80.0[b]	+ 2.4	99	19	61	22	31	2.18	− 1.99	0.70	0	6	.....	.....	.....	.....	William R. Wilson.
Worsham	Sumner	550	11	.....	.....	.....	.....	.....	.....	.....	3.60	− 0.14	1.18	0	6	18	5	8	e.	James G. Elizer.
Yukon	Lincoln	850	17	80.0	+ 1.7	98	8†	62	8†	36	1.71	− 2.61	1.03	0	5	9	20	2	sw.	William P. Watson.
Alabama.																				
Bridgeport	Jackson	660	13	.....	.....	.....	.....	.....	.....	.....	4.29	− 0.94	1.85	0	9	.....	.....	.....	.....	R. L. Moore.
Decatur	Morgan	573	31	81.1	+ 1.3	101	19	61	8	34	2.16	− 2.31	0.85	0	8	.....	.....	.....	.....	Earnest A. Carriger.
Florence	Lauderdale	563	29	79.4	+ 0.2	101	19	58	8	38	3.03	− 1.74	1.10	0	9	15	12	4	w.	Cyrus A. Ashcraft.
Guntersville	Marshall	580	8	.....	.....	.....	.....	.....	.....	.....	3.88	.....	0.90	0	11	.....	.....	.....	.....	L. S. Long.
Madison	Madison	573	19	81.8	+ 2.6	104	19	67	8†	36	2.25	− 2.11	1.42	0	3	12	17	2	.....	Edward Humphrey.
Riverton	Colbert	360	16	79.5	+ 0.7	99	18†	51	8	47	2.24	− 2.22	0.65	0	9	.....	.....	.....	.....	James F. Long.
Scottsboro	Jackson	652	30	79.4	+ 1.3	98	5	59	21	35	3.72	− 1.55	1.72	0	9	8	9	14	sw.	H. A. Caldwell.
Tuscumbia	Colbert	488	31	81.8	+ 1.8	102	6	63	8	35	1.58	− 2.98	0.70	0	7	.....	.....	.....	.....	Samuel Moore.
Georgia.																				
Diamond	Gilmer	2,020	21	75.4	+ 1.1	100	19	52	8	37	3.68	− 2.87	1.92	0	8	14	11	6	.....	R. A. Kimzey.
Mineral Bluff	Fannin	1,571	....	76.8	.....	98	19	50	8	39	3.08	.....	1.30	0	7	.....	.....	.....	.....	W. T. S. Deckey.

TABLE 1.—*Climatological data for July, 1913. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Carolina.																				
Altapass	Mitchell	2,629	....	71.4	.....	90	16†	48	7	32	4.30	.....	1.50	0	6	21	5	5	w.	Altapass Inn.
Andrews	Cherokee	1,800	3	75.8	.....	98	18	49	8	40	6.35	.....	1.96	0	13	11	18	2	sw.	J. D. Link.
Asheville	Buncombe	2,255	34	74.0	+ 2.3	94	19	51	8	30	3.16	− 1.70	0.91	0	13	7	15	9	nw.	U. S. Weather Bureau.
Banners Elk	Avery	3,750	5	68.2	.....	89	19	40	8	34	4.37	.....	1.90	0	9	14	8	9	w.	T. L. Lowe.
Blantyre	Transylvania	1,900	1	.....	.....	.....	.....	.....	.....	.....	4.85	.....	1.27	0	14	.....	.....	.....	.....	R. W. Collett.
Blowing Rock	Watauga	4,090	4	.....	.....	.....	.....	.....	.....	.....	5.59	.....	1.86	0	8	.....	.....	.....	.....	E. G. Underdown.
Bryson City	Swain	2,000	25	.....	.....	.....	.....	.....	.....	.....	4.28	− 1.14	1.60	0	11	.....	.....	.....	.....	D. K. Collins.
Cane River	Yancey	2,700	....	.....	.....	.....	.....	.....	.....	.....	2.68	.....	0.53	0	14	.....	.....	.....	.....	Hiram A. Proffitt.
Cullowhee	Jackson	2,100	3	74.4	.....	96	19	46	8	38	3.40	.....	1.23	0	13	11	10	10	nw.	Frank H. Brown.
Eagles Nest	Haywood	5,050	....	67.8	.....	82	18	51	7	22	2.92	.....	0.60	0	14	22	4	5	sw.	S. C. Satterthwait.
Ellijay	Macon	2,500	....	.....	.....	.....	.....	.....	.....	.....	4.12	.....	0.76	0	11	.....	.....	.....	.....	Chas. G. Mincy.
Highlands	....do....	3,850	23	68.0	+ 1.0	87	19	44	8	31	10.31	+ 3.60	2.35	0	14	7	22	2	nw.	T. G. Harbison.
Hot Springs	Madison	1,326	15	76.8	+ 1.8	97	18	52	8	37	1.37	.....	0.81	0	7	6	18	7	w.	P. A. Garner.
Jefferson	Ashe	2,900	6	72.7	.....	92	18†	45	8	35	2.93	.....	0.82	0	7	3	7	21	w.	Prof. E. J. Johnson.
Marshall	Madison	1,646	11	76.8*	+ 2.2	99	18	50	8	35	1.49	− 2.41	0.47	0	6	18	3	10	w.	M. L. Church.
Murphy	Cherokee	1,614	37	.....	.....	.....	.....	.....	.....	.....	5.68	− 0.45	1.91	0	9	.....	.....	.....	.....	Miss Victoria Mingus.
Rock House	Macon	3,100	21	70.7	− 0.2	90	18	54	8	21	6.85	− 1.71	1.35	0	17	12	14	5	sw.	Barry C. Hawkins.
Transon	Ashe	2,600	1	.....	.....	.....	.....	.....	.....	.....	2.05	.....	0.75	0	6	.....	.....	.....	.....	S. M. Transou.
Waynesville	Haywood	2,792	19	73.4	+ 3.0	97	19	46	8	37	2.67	− 2.20	0.52	0	13	13	12	6	sw.	Mrs. Chas. E. Quinlan.
Virginia.																				
Blacksburg	Montgomery	2,170	22	72.8	+ 1.9	94	31	47	8	33	5.38	+ 0.56	2.49	0	15	21	5	5	w.	Agricultural Exper. Station.
Burkes Garden	Tazewell	3,250	18	69.6	+ 2.4	87	18†	42	7	35	3.52	− 1.09	0.57	0	11	7	12	12	sw.	C. H. Greever.
Elk Knob	Lee	3,243	10	77.0	+ 4.3	98	18	58	7	27	2.27	− 2.95	0.67	0	12	13	16	2	sw.	Henry Nicoll.
Emory	Washington	2,094	1	74.4	.....	96	18	44	8	39	0.86	.....	0.65	0	6	20	1	10	.....	J. E. Weaver.
Ivanhoe	Wythe	2,028	9	72.0	.....	90	2†	52	8	30	4.09	.....	1.10	0	15	16	13	2	w.	Miss Alice G. Jewett.
Max Meadows	....do....	2,028	17	73.0	+ 2.1	94	31	46	8	39	2.88	− 1.41	1.05	0	10	20	10	1	sw.	James M. Graham.
Mendota	Washington	1,350	4	.....	.....	.....	.....	.....	.....	.....	1.37	.....	0.70	0	5	.....	.....	.....	.....	Frank M. Barker.
Mountain Lake	Giles	4,348	3	64.4	.....	85	1†	37	8	36	5.16	.....	1.28	0	9	26	5	0	.....	H. E. Dorland.
Radford	Montgomery	1,773	4	.....	.....	.....	.....	.....	.....	.....	2.16	.....	0.50	0	7	.....	.....	.....	.....	Arthur Roberts.
Speers Ferry	Scott	1,221	17	.....	.....	.....	.....	.....	.....	.....	2.01	− 3.45	1.26	0	7	.....	.....	.....	.....	Miss L. E. Venable.
Wytheville	Wythe	2,293	20	73.6	+ 1.0	92	30	47	8	34	2.66	− 1.78	1.20	0	12	13	17	1	w.	U. S. Weather Bureau.

*, b, *, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
‖ Estimated by observer.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 3, Ohio Valley.*

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York.																																	
Allegany	Allegany		.42			.23				.81			.22	.14				.31			.12			T.	.37			1.22	.40				4.24
Bolivar	do.		.40		.10	.10	.12	.05		.75			.20	.12				.17			.15			.22	.33			.37					3.08
Olean ‖	do.			.25		.35		.14	.09	.12	.40			.08	.12					.25		.45			.10				.98				3.33
Pennsylvania.																																	
Aleppo	Ohio		.35			.40	.30				.81		.20	1.53			.40								.23						.10		4.32
Baldwin	Allegheny	.30	.14			1.06				.52	.92		.07	.04		.04		.52			.02			T.	.85			.12	.28				4.88
Beaver Dam ‖	Ohio		.42			.44	1.22	.05		.08	.21			T.	.34	.34		.26	.59		T.			T.	.19	.14			T.				4.28
Beaver Falls ‖	do.		1.04			1.93	1.60	T.		.02	.51				.20	.18		.70	.05		T.				.31	.06			.05	.73	.04		6.82
Brookville	Allegheny		.12			.30		.27		.19	1.86		.11	.13	.02			.06						.01	1.15	.02			.12				4.36
California	Monongahela	.04				.34	.02		.05	.36	.27		.75	.05		.45			.07					.08					.02	T.	T.		2.50
Cheat Haven	do.		.03	T.		.13	.10			.56	.82		.18		1.34	1.80		.88	T.		T.				.24				.01			.18	6.27
Clarion ‖	Allegheny		.29			.25	.15				2.50				.20			.20							.70	.25							4.54
Claysville	Ohio		1.47			.26	.15			.07	.63		.04		1.02	.25		2.15		T.	.02				.70	.02			.25	.77	.20		8.00
Confluence ‖	You'ogh'ny		.10				.19	.27		.08	1.10				.75			T.	.70	T.		T.				.79				.14	.12		4.24
Coraopolis ‖	Ohio		1.27			.01	.50	.03		.03	.16			.14	.45	.56		.35	.52		T.			.03	.11	.60			T.	.87	.05		5.68
Davis Island Dam ‖	do.		1.25			.20	1.12	.05		.02	.29			.14	.64	.40		.21	.42		T.			.01	.10	.42			T.	.22	.04		5.53
Derry Station	Allegheny		.09			.66		T.		.41	.70		.25		.15	.28		.52							.33				.12	.44	T.		3.95
Edinboro	do.		.40		.40	1.57	.05			.58			.33	.79				.26			.17				.29				.07		T.		4.91
Ellwood City ‖	Ohio		.95			.28	1.66	.03			.68				.51	.23		.79	.07			T.			.93	.16			.04	.09	.11		6.53
Franklin ‖	Allegheny		.26	.07		1.45	.41	.02		.11	1.74			.11	.07			.32	.02		T.	.09			.51	.03			T.		.05		5.26
Freeport ‖	do.		1.04			.05	.07	.04		.05	.03			.14	.02	.30		.12	.22					.02	.52	.47				.01	.03		3.13
Greensboro ‖	Monongahela		.22	.04		.08	.80	.04			1.50			.10	1.24	.82		.30	.60			.14			.04	.14						.31	6.68
Greensburg	You'ogh'ny	.02	.07			.90	.01	.02		.51	.27		.12			.55		1.21		T.	T.			.03	.35				1.44	.15	.30	.27	6.22
Greenville	Ohio	.02	.20		.06	.67	.11	.11		.62			.34	.09	.02			.28						T.	.46			.62		.05	T.		3.65
Grove City	do.	.15	.20		.01	2.06		.09		.60	.92		.19		.22			.25			.08			.21	.58			.87	.48				6.91
Herrs Is. Dam ‖	Allegheny		.80			.07	.44	.02		.04	.43		T.	.35	.65	.50	T.	.16	.68		T.			.08	.18	.55			T.	.02	T.	T.	4.97
Indiana	do.		.20			.19	.06	.09		.21			.15		.19	.03		1.20	.80					.20		.15		.30		.73			4.52
Irwin	Monongahela	.59	.11			.68	T.	.02	.19	.05	.30		.10		.42	.23		.95						.02	.54			.01		.03		.04	4.78
Johnstown	Allegheny		.17			.86	.01	.04		.65	.44			.17	.19	.04		.48				T.		.20	.39			.01	.15	T.	T.		3.80
Lock No. 4 ‖	Monongahela		.40				1.07	.13		.05	.32				.66	.10	.05	.08	.50						T.	.55					T.		3.91
Lyeippus	Allegheny		T.			2.11	.10			.34		.13			.54	.55		.55	.21						.47				.84	T.	.10		5.94
Mosgrove	do.		.24			.07	1.16	.09		.05	1.73			.03	.01	T.		.24	.50						.36	.26				.06	.13		4.93
Parkers Landing ‖	do.		.15	.12		.26	.90	.10		.04	.60			.06	.08			.24	.20	.12					1.34	.24			.02	.04			4.51
Pittsburgh	Ohio	.77			.01	.36	.04			.34			.31	T.	.55	.43		1.14		T.	T.			.10	.74				.07	T.			4.86
Ridgway	Allegheny	.05	.04		.20	.85	.01			3.25			.05	.96							.05			.44	.46								6.36
Saegerstown	do.				.50	2.18	T.			.76			.27	.28					.42		.16			.05	.32			.32	.18				5.64
Saltsburg ‖	do.		.23	T.		T.	.24	.02		.12	.50		T.	.04	.10	.11	T.	T.	.50		.16			.04	.04	.40					.04		2.38
Sharon ‖	Ohio		.27	T.		.19	.59	.05			1.15			.25	.18			.93			T.	T.			.14	.09			.06	.05	T.		3.96
Somerset	You'ogh'ny		.12			.22	T.	.25		.20	.17	.11				.95		.35			.16			T.	.51			.55	.15	.14	.17		4.05
Springdale ‖	Allegheny		1.13				.23	.02		.04	.68			.58	.21	.23		.23	.95					.05	.07	.45			.10		.15		5.12
Uniontown	Monongahela	T.				.82		.18		.20	1.09		.21		1.37	.02		.32			.06				1.44				.78	T.	.06	T.	6.55
Warren	Allegheny				.10	.74	.10			.54	.21		.10	1.50							.28			.20					.06				3.83
West Newton ‖	You'ogh'ny		.30			.02	1.27	.05		.15	.80			.15	.80	.35	.35	.07	.97			T.			T.	.51			.08		.04	.21	6.10
Maryland.																																	
Deer Park	You'ogh'ny				.85	.64	.09			.44	.75		.14	1.03	.46		1.69				.39				.22				.10				6.80
Grantsville	do.		T.			.04				.46	.91		.10		1.05	.22		.35	.17		.05				.25			T.	.27	.67	T.		4.54
Oakland	do.		.06	.03		.72	.04			.03	.70			.09	1.10	.97		.44			.16	.05			.46					.07			4.92
West Virginia.																																	
Bancroft ‖	G. Kanawha				.45	.43					.59					.15		.05			.75	.30											2.72
Beckley	do.		.98	1.50						.32					.58		.70	.48	.32						.92								5.80
Bens Run	Ohio					1.40	.22			.02	.90		.16		2.99			.27		.19				.40	.18	.08			.12		.17		7.10
Bluefield	G. Kanawha			.48	.49						.30	1.10	.20	.06		.48		.41					.30		.10	.81		.15		.52			5.40
Brandonville ‖	Monongahela										2.50			.17	1.31					1.16												.31	5.45
Buckhannon	do.			T.	T.	.20	.40			.70	1.55		.25		1.42	.35		.35		.28										.68	.12	.63	6.93
Cairo	L. Kanawha	.42		T.		.45			T.		2.15		.03		1.30	.27		.95	.23	.47		.05			.63	.45			.22	.05	.10		7.77
Central Station	M'dle Is. C'k		T.	.03	T.	.73	.68			.91	1.80		.05		1.85	.57		.35		.10	.07			.40	.29				.10	T.	.05		7.98
Charleston ‖	G. Kanawha		T.	T.	.28	T.	.30				1.05					.55	.02	.88		.45	1.50				.05	.98				.45				6.51
Cheat Bridge ‖	Monongahela	T.		.10	T.					T.	4.00		.10	.88	.40	.20	T.							.08	T.	.20	.34	T.				.30	6.60
Cortland ‖	do.					.42	.57				1.68			.41	1.20	.25	.34	.72				.26						.76		.22				6.83
Creston ‖	L. Kanawha			.07	.04		.04				1.19			.40	.03	.82	.02	.41		.20	.04				.10	.21			.04		.24		3.85
Cuba	Sand Creek		T.	.80		T.				T.	2.38		.16		.41	.37		1.35		.06				T.	.10			1.01		.17			6.81
Davis ‖	Monongahela			.14		T.	1.78			T.	2.20		.20	.29	1.19	.34	.15	.05	1.10		.02	.11	.02	T.	.04	.87				.12			8.62
Elizabeth ‖	L. Kanawha		.36		.05						2.00		.09			.41	.10	.63		.12	.02					.20			.19					4.17
Elkhorn	Big Sandy		1.55	.15	.23						.78	.23	T.		.15	.08	.13	.45	.08	.63	.13	T.			.41				.20				5.70
Elkins	Monongahela		T.	.27	.45	.55	.03			2.21	.42		.32	.43	.95	.08		.87		.15	.01		T.	.01	.94	.06			.19	T.	T.	.73		8.67
Fairmont ‖	do.			.16			.58	T.		.13	1.55		.05	.09	1.26	.48	.05	.16	1.05			.03			.39	.22				.60			.02	6.82
Glenville ‖	L. Kanawha		.22				1.42				4.48				.32	.42		.34		.82					1.65				.12			.28	10.07
Grafton	Monongahela		.30			1.10	.32			.12	1.37		.17		1.70	.26		1.07			.63	.05			.44	.03					.66	.03		8.25
Green Sulphur Spgs	G. Kanawha			.06	.61	.02	.04				.46	.05	.02			.60		.22		.79					.24	.22					.31	T.		3.64
Hinton ‖	do.				1.22	.06	.04				.16	.12	.02	.06		.24		.38		.14	.38			.40		.66			.10		.10		4.08
Holcomb	do.			1.00			2.00				1.35		.15		*	.50		.53		2.04					.72				.13				8.42
Huntington ‖	Ohio		.04	T.	.14		.12				.48		.02			.26	T.				.34				.38	.28				.74			T.	2.80
Lewisburg	G. Kanawha		T.	3.02	T.	T.	.49				.76	T.			.29	.12		.23		.90			.34		.09	.23							6.47
Logan	Guyandotte		.60		1.30	.10	.01				.12	.37	.03			.65		.04		.60				T.	.05								3.87
Lost Creek	Monongahela		T.			.45	.28			.95	1.47		.15		.98	.86		.36		T.	.10			T.	.40						.20	.04	6.24
Madison ‖	G. Kanawha						.13					.17	.12			.40	T.	T.			1.25	T.				.07			T.					2.14
Mannington	Monongahela		.29			.24	.35			.75	.57		.13	T.	2.05	.12		.35			.10				.30						.01		5.26
Marlinton	G. Kanawha			.50	.25	.40					.75		.60							1.10				.30	.20							.60	4.70
Morgantown	Monongahela		.15			.35	.13			.15	.57		.18		1.56	.45		1.68	*	.02	T.				.21						.35		5.80
Moundsville	Ohio	.13			T.	.86	.27			.22	.73		.32		1.72	.02		.23						T.	1.00					.55	T.		6.05
New Cumberland	do.	1.00			.80	.30	.20			.30			T.		.30	.40		1.30		T.				.10	1.00			T.	.60	T.			6.30
New Martinsville	do.		.10			.45	.40			1.25	.32		.30		3.15	.05								.45	.25								6.72
Nuttallburg	G. Kanawha				.40	.75					1.35		.21		.80	.20		.75		1.40													5.86
Parkersburg	Ohio	T.		.01		.35				1.95		.04	.23		.51	.15		.36	.01	T.	T.			.61	.18			.24		T.	T.		4.64
Parsons	Monongahela		.15			1.00				1.25	.92		.55		1.63	.58		1.45			.63				.96				.15		.30	.38	9.95
Philippi	do.				.20	.19	.26			.18	1.13		.33	.09	1.22	.20		.95			.05				.77					.64	.82		7.03
Pickens	do.			T.		.62	.86			.13			.68		.76	.32		.32		*	.43				1.47				T.			1.49	7.08
Point Pleasant ‖	Ohio		.02				.04				.66			.20		1.04					.10				.20	.12			.28				2.66
Powellton	G. Kanawha					.57					.51	.31	.14		.98	.03		1.01		1.56					.17	.16			.30				5.74
Princeton	do.		.25	.25	1.25						.40	.50			.30	.10		.10		1.75					.15				.30	.25			5.60
Robertsburg ‖	do.						.08				.40			.12		.23				.14	.12				.24	.82			.80				2.71
Rowlesburg ‖	Monongahela					.52	1.00			.12	1.20		.02	.36	1.08	.30	.26	.02	1.20			.12			.24	.22				.36			7.02
Ryan	G. Kanawha		.04	.88	2.06	T.	1.31				1.01		.32		.03	.29		2.10	.01	.10	T.			T.	.16			.75	T.				9.06
Saint Marys ‖	Ohio		T.				1.02			T.	3.05			.27	2.00	.32		.47		.57	.08				.20	.15			.15			.05	8.33
Smithfield ‖	Fish'g Cr'k	.11	.07		.32		.89			.67	1.85	.04	.22	.36	2.07	.05									.05	.34						.12	7.16

TABLE 2.—*Daily precipitation for July, 1913. District No. 3*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
***West Virginia*—Con.**																																	
Spencer ‖	L. Kanawha						2.74				1.65			T.		1.60		.65			.06											6.70
Sutton ‖	G. Kanawha				T.		.70				1.87				.33	.80		.43	T.	T.	T.				.80						.84	5.77
Terra Alta	Monongahela																															
Union	G. Kanawha					.47					.24	.37	T.				T.	.31			.83				.75							2.97
Valley Fork	do																															
Webster Springs	do			.90	T.	T.	1.57				1.50	.10			.25	.35		.12		.27	T.		.26	.15	.22							5.69
Wellsburg	Ohio	.14			.60	1.00	.17			1.25	.64		.27		.73	.40		2.04			.23					1.42			.78				9.67
Weston ‖	Monongahela																															
Wheeling ‖	Ohio		.97			T.	.80	T.			.35			T.	1.30	.35	T.	.35	.11		T.				.01	.87			T.	.77		.11	5.99
Williamson ‖	Big Sandy			.42	1.24	.18						.22	.04	T.		.16	.36	.02		.36	.28	.08		.40		.44			1.68				5.88
Ohio.																																	
Amesville	Ohio		.13	T.						1.95	.55		.45		.62	.32		1.60							.50	.40		.42		.68	T.		7.62
Ashland	Muskingum	T.	.47			.32	.49			.16			.16	2.00	.65	.06		.34			T.			.07	.08			.39	T.		.08		5.27
Bangorville	do	1.19	.18			.72	.46						.28		1.82	.36		.72		.05	.04				.10			T.	.32		.05		6.29
Bellefontaine ‖	Great Miami		.92			.03	.06			.18	.13		.18		.26	.95					.07				.07				.71				3.56
Bladensburg	Muskingum	.88				.66				1.68					3.35	.22		1.23		T.				T.	.89				.10	.07	T.		9.08
Brilliant	Ohio	.56				1.50	.20			1.35					.96	.75		1.75						1.20					.50	.30			9.07
Cadiz	do	1.24	.25		.02	.70	.18			.46			.12	.87	.23			.18	T.					.19	1.95			T.	.16				6.55
Cambridge	Muskingum	.15	.27			.39	.78			1.03			.04		4.46	.10		.22		.20					.92			.52		.25			9.33
Camp Dennison	Little Miami	.25					.08			.15	1.10	.07	.35		.14	.75	.08								.55			.01					3.53
Canal Dover	Muskingum																															
Canton ‖	do		.14			.20	.46	.04			.07		.13		.45	.50		.79			.13				.15				.02				3.08
Cardington	Scioto	.26								.65	.06			1.31		.34	*	1.19										*	.84				4.65
Chillicothe ‖	do			.17			.68				2.37						.60				.15											.10	4.07
Cincinnati	Ohio	.01		.01		.13				.34		.40	.15		.01	.65	.10								.55			.02					2.37
Circleville ‖	Scioto		.47	T.	.16	.09	.03			.03	.16		.07	.12	.22	1.09									.18	.31			.34				3.27
Clarington	Ohio	1.00	T.		T.	.30	.50			.75	.25		.22		3.50	.12		.12						T.	.35	.10			T.	T.	T.		7.21
Columbus	Scioto	.26				.03				.33		.01	.11		.45	.30				T.				.01	.68			.70		T.	T.		2.88
Coshocton ‖	Muskingum			.34			1.43			.45		.02			3.15	.18		.53		.50				.10		.54			.20			.01	7.45
Dayton (1)	Great Miami	1.00				.11			.07	.31		.14	.20		.23	.29	.39			T.				T.	.09			T.				.07	2.90
Dayton (2)	do	1.42					.12			.50		T.	.52		T.	.62	.37			T.					.17							T.	3.72
Delaware	Scioto	.31	.96			.30	.19			.02	.20		.17		2.62	.38	T.			T.					.39				T.	.21			5.75
Demos	Ohio	.25	.05		.46	.96	.02			.64			.03		1.83	.39		.02		.01				.01	1.43	.05		.08		T.	.14		6.37
Dennison	Muskingum																															
Frankfort	Scioto	.50					.85			.35	1.50		.38		.05	.45				T.					.80			.30			T.		5.18
Gallipolis ‖	Ohio		.07				.31				.65		.05	.22		.18	T.				.05				.02	.13			.17				1.85
Garrettsville	Mahoning	.11	.06		.18	.73	.22			.59			.39	.18	.12	.17		.18		T.				.20	.10			T.	.03	.02			3.28
Granville ‖	Muskingum		.45			T.	.35			.15	.46		.15	T.	2.50	.50		.52			T.				.02	.97			T.		T.		6.07
Gratiot	do	1.40				.02				1.12			.07		3.98	.19		2.00							1.73			.01	.04				10.56
Green	Ohio	.93					.60				.67					1.90				T.					.27		T.	.97					5.34
Green Hill	Muskingum	.50	T.		.22	1.82	.06			.45			.10	T.	.20	.43		.47		.23				.15	.11			.04	.11	1.01			5.90
Greenville ‖	Great Miami		.21							.55	.03		.29		.16	.91	T.	.82							.12					.08			3.17
Hamilton	do	.41					.15			.20	.53		1.10		.02	.79	.32								.45			.16					4.13
Haydenville	Ohio									1.07						1.96									.40						.30		3.73
Hillsboro	Scioto																															
Ironton	Ohio		.05		.05						2.30		.39			.76															.03		4.22
Kenton	Scioto	.33	T.			.55				.15				.05	2.40		T.								.48								3.52
Killbuck	Muskingum	.42	.10			.20	.35			.07					3.50	.03		.60		.70				.20	.70			.03	.04	.48			7.42
King's Mills ‖	Little Miami		T.			.03	.46		.01	.96	.08		.28	.14	.02	.60		.29							.63	.17				T.			3.67
Lancaster	Ohio	.43	T.			T.	.05			.30	.70	T.	.20		1.32	.30		T.							.63						T.	T.	3.93
McConnellsville	Muskingum	.43	.12			.59	.03			2.57	.04				3.24	.51	1.47			.10	T.			T.	.32			T.	.21	.03	.61		10.27
Marietta	Ohio		T.			.63	.21			2.31	2.00		.20	.03	1.48	.14		1.01		.43				.51	.22			.01	.15	.02			9.35
Marion	Scioto	.95				.40				.75			.14		1.80	.30		.20							.10			.30					4.94
Milfordton	Muskingum	.47	.08			.32	.25			1.78			.10		2.90	.41	T.	1.11		T.				.36	.42			T.					8.20
Milligan	do		.60			.14				2.04			.37		3.56	.14		2.48			T.				.56			.03		.30	.03		10.25
Millport	Ohio	.55	.02		1.27	1.32	.21			.42			T.	T.	.18	.40		.82		.08				.25	.18			T.	.69	1.58			7.97
Nellie	Muskingum	.42	.12			.50	.42								1.47		T.		.75	.20				.09	.43				.08		T.		4.48
New Berlin	do	1.00				.55	.18			.03			.72	.10	.25	.20		.37		.25				T.	.28		.21						4.14
New Waterford	Ohio	.42			1.00	.90				.42			T.		.28	.33		.57						.16	.31				.66	.12			5.17
Ohio State Univ	Scioto	.58	.08				.05			.07			.05		.63	.29									.56			.71			.03		3.05
Oregonia ‖	Little Miami																															
Pataskala	Muskingum	.10	.06			.15				.60		.01	.15		1.47	.28	T.	T.		.01					1.08			.25		.10			4.35
Peebles	Ohio	1.97	.06				.12				1.20	.03	.20			.53	.33			.05					.38		.93						5.80
Philo (1)	Muskingum	.05	.25			.18	.24			1.20			.08		6.48	.28		1.28		.02					.73			.02	.19				11.00
Piqua ‖	Great Miami		.10							.96	.06		.50	1.03		.77	.14	.14						.45									4.15
Plattsburg	Little Miami	.76					.54			T.	.36		T.		.57	.68	T.	T.							.26			T.		.11			3.28
Portsmouth ‖	Ohio		.32				.02				.87		.21	.22		.59	.13	.33		T.	.05				.21	.46		T.	.25		.12	.30	4.08
Prospect ‖	Scioto																															
Sidney	Great Miami	.08	.11			.18	1.01			.70			.19		.44	.62	.23				.02				.11			.21					3.90
Somerset ‖	Muskingum	T.	.55				.02			.08	.26		.03	.01	2.30	.86		.85			.04				.04	.53			.02				5.59
Springfield	Great Miami	.69	.06			.02	.86			.24	.35	T.	.22		1.01	.97	.04								.08			.01					4.55
Summerfield	Ohio		.28		T.	.78	1.04			1.71			.25		4.51	.05		.19		.08				T.	.92			.36	.03	.37	.47		11.04
Syracuse	do				3.65						.93	.74	.22		.63	.21				.02				.37	.12			.27	.11	.06			7.33
Thurman	do										.15	.50			T.	T.				T.			.46	.60					T.			1.71
Toboso	Muskingum		.50			.07	.45			.40	.55			.15	7.40	.19		.87								.88							11.46
Urbana	Great Miami	.67			.04	.91		.18		.34			.14		.30	.54	.04								.29			.17					3.62
Warren	Mahoning	.07	T.		.03	.96	.29			.10			.28	.72	.06		.78							T.	.11			T.		.11			3.51
Waverly ‖	Scioto		.48				.07				1.21		.05	.15		.33		.07							T.	.25		.04	.25				2.90
Waynesville	Little Miami	.33					.25			.07	.25	T.	.35		T.	.78	.20								.63			T.		T.			2.86
Wooster	Muskingum	.42	.03			.50	.30			.02			.30	.58	.39	.04		.05		.01	.20			.20	.07			.84			.12		4.07
Youngstown ‖	Mahoning		.13			.65	.59	.09			.11			.06	.22	.13		.57			T.	T.			.22	.26			1.08				4.11
Zanesville ‖	Muskingum		.83				.53			.54	.85		T.	.02	6.70	.50		1.86			.22				.04	.88			.13		.02		13.12
Indiana.																																	
Anderson	W. F., White	2.61				T.				.40		.20			.60	.63	.40							.05	.02			T.		.73		.25	5.89
Attica ‖	Wabash	.75				.79				.39	.09		T.		.07	.07	.17	.03		T.								.24	.02	.01	T.		2.58
Bluffton ‖	W. F., White	.59	.02				T.				T.		.30		.02		.74	T.			.11			1.07	.03		T.	T.			.25	3.13
Bloomington ‖	Wabash		.06			.21		.50		1.24		T.	.44		1.72	1.34	1.80	T.						.65				.87		T.		8.83
Butlerville	E. F., White						.19						.37			.64	.08			T.				.45		.58	.19				.05	2.55
Cambridge City ‖	Whitewater		1.65		.46	.02	.26			.72	.03		.90		.06	1.43		.77							.03				.15	.23			6.71
Columbus ‖	E. F., White	.12	.06										.15			.03									.88	.02				.39			1.65
Connersville	Whitewater												.82			.90	.30											20					2.22
Crawfordsville	Wabash	.23				.20			.36						.31	.20	.10			T.				T.									1.40
Delphi ‖	do		.23			.10				1.07					.64	1.17	T.								T.				.09	T.			3.30
Evansville	Ohio	.12	T.							.05		T.	.35	T.							.05			.16	.62								1.35
Farmersburg	Wabash	.23								1.45		.03	.05								.26			.09	.01			.02				T.	2.14
Farmland ‖	W. F., White		.45		.04	.16	.19			.97	.03		.61		.24	1.21		.99							.03				T.	.02			4.94

TABLE 2.—*Daily precipitation for July, 1913. District No. 8*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Indiana—Contd.																																	
Forest Reserve	Ohio											.28	.34			T.				.12					.46			.35		T.			1.55
French Lick	E. F., White		.06	.11							.03		.35		T.						.25				.15	.09							1.04
Greenfield	do	.15		T.		T.				.30		.37				2.25	.09			T.				T.				1.10		.85		1.03	6.14
Greensburg	do	.85								.10		1.20			.05	1.10								.15	.12			.20	.10			.10	3.97
Hickory Hill	W. F., White									.06		.04	.16			1.79	.04								.42								2.51
Huntingburg	Wabash		.16											.61							.14				.86			.15					1.92
Huntington	do	T.			.03	.60				1.07		.05		1.35	.85	2.30												.09	.03			.09	6.73
Indianapolis	W. F., White	.21		T.					.03	.12		.12	.05		1.02	.94	.02			T.				.27				.04	.10			1.11	3.88
Jeffersonville	Ohio	.07	.04							T.		.11	.33			T.				.44				.12									1.92
Judyville	Wabash	.17	.03			.37				.50					.48		.19								.57		36						3.40
Kokomo	do	.09	T.			.09				.60				T.	.74	.85	T.							.04				1.23		.43			3.22
Lafayette	do	.23	.01		T.	.02				.32			T.		.27	.24	.01			T.				T.				T.	.54			.56	2.20
Logansport	do		.10			.04				1.24					.90	1.08	.10												.26				3.72
Madison	Ohio		.35										.83			.17	.02		.01	.13					.34			.64				T.	2.49
Marengo	do		.06							T.			.48			.03				.50				1.67				.25					2.99
Marion	Wabash		.08			.09	.54			1.38					.50	1.53	.12	.96							.11					.36	.08			5.75
Mauzy	E. F., White	.64				.10				.16	.54	.19	.19		.01	.83	.26			T.				T.	.02			.43	T.		.05	T.	3.42
Monticello	Wabash	.32				.02				.61					.79	1.23	.01												T.	.40			3.38
Moores Hill	Ohio						.21				T.	.68	.14			1.07	.11								.65			.28					3.14
Mount Vernon	do		1.05							T.	.10		.50				T.							1.02	.10							2.77
Nashville	E. F., White	.20									.15					.49	T.			.04				.94			.12				.20	2.14
Paoli	do		.29	.01						.03		.03	.32							.07				.26									1.01
Princeton	Wabash	.16								.60		.53								.09				.15									1.53
Richmond	Whitewater	.17				.06			1.15	.06		.46	.03		.87	.17	.89			T.				.03	.06			.35	T.			.28	4.58
Rochester	Wabash	.13	T.			.95			1.01					T.	1.08	2.16			T.		.09			.01				T.	.07				5.50
Rockville	do	.22	T.	.07		T.				.08			T.		.01	T.	.12			T.				.35					T.	T.	.01		0.86
Rome	Ohio		.01									T.	1.20							.04					.12			.25					1.62
Salamonia	Wabash	.71			.01	.64			.09	1.06			.15	.11	2.02	1.03	1.12								.02			.05				.11	7.12
Salem	Ohio			.20			.17					.50	.26			.06	.02		T.	.16					.70			T.			.03	.02	2.12
Scottsburg	E. F., White			.22								.11	.16			.02	T.			.14					.35							.06	1.06
Seymour	do	T.				T.				T.		.28			T.	.04	T.		T.	.05					.51		T.	.02	.12		T.	.12	1.14
Shelbyville	do	.36		.07						.85		.06	.17			1.90	.72								.05			T.	.01				4.19
Shoals	do	.74	.02	.36							.10		.55								.20				.41	.15							2.73
Terre Haute	Wabash	.22							.10	.28		T.	.06		T.	.06	T.			.03				.08	T.						.05		0.91
Veedersburg	do	.07	.05			.09				.08	.02	.01			.16	.05	.13	.02											.01		.14	.01	0.82
Vevay	Ohio	.10	.05										1.45			1.10									.60	.10		.35					3.75
Vincennes	Wabash	.60	.50								1.00		.50			T.	T.				.15				.45	.05							3.25
Washington	W. F., White			.04						.23			.34							.17					.38								1.16
Whitestown	do		.12		T.	T.	.29			.11			.10			2.25	.07	.02		T.					.25				.11	.28			3.60
Winona Lake	Wabash	.02				.40			.70	.65					.77	.62	.88			.02				.03	.02			.48	.06				4.65
Worthington	W. F., White									.16		.50	.11				.17			.13				1.17									2.24
Illinois.																																	
Albion	Wabash									T	2.40	.07	.47			T.				.12					.07								3.13
Casey	do	2.35								T.		.31				T.				.33				T.									2.99
Charleston	do	.16			.04					.04		.03	.03		.02	.04				.10				.05				24					0.75
Danville	do	.02	.05	.01	T.	.04				.32			T.		.15	.35	.13			T.								.01	T.	T.			1.08
Equality	Ohio	.10	T.	T.						.08	1.02	T.	.62												.53			T.			T.		2.35
Fairfield	Wabash	.40	T.							T.	.14		.38			.30				.07				T.	.05				.07				1.41
Flora	do	.44											.51			.09				.15				.07	.29		.22	T.					1.77
Golconda	Ohio		.04							.87		.33	1.50												.10				.85				3.69
Hoopeston	Wabash	.08	.01		.01	.22				.74					.36		.61			T.				.01				T.	.54				2.58
McLeansboro	Ohio	.05	.10							.19	1.06																						1.40
Metropolis	do	.09								T.	2.65	.32	1.26								.12					.22		.15	.05		T.		4.86
Montrose	Wabash	.65										.03	.07			.13				.37				.08			.01						1.34
Mt. Carmel	do		.56							.06	.32		.60				.02				.06				.22								1.84
New Burnside	Ohio	.47	.20		T.					.15	.40		1.80												.51	.96			.03			1.03	5.55
Newton	Wabash	.35							T.	T.		.59	.18			.02				.29					.19		T.						1.62
Olney	do	.30	.20										.60							T.	.16				.92			T.					2.18
Palestine	do																																
Paris	do		2.35		T.	.05				.30			.12			T.				T.					.10								2.92
Philo	do	T.							.38																								0.38
Rileyville	Ohio	.03								.05	1.29	T.	1.23			T.				.06				1.15			T.			T.			3.81
Shawneetown	do	.25	.06							.04	.21		.72											1.60	.08								1.96
Tuscola	Wabash	.03				.43				.18			.02		T.	.06				.01													0.73
Urbana	do	T.	T.			.01				.76			.01		T.	.10				.01								.46	.02	T.	.15	T.	1.52
Kentucky.																																	
Alpha	Cumberland	.30	.20								T.	.25	.72							.53			T.		T.		2.20	T.	T.				4.20
Anchorage	Ohio		.57									.43	.26			T.	T.			.90					.46			T.					2.62
Bardstown	Salt		.27										.24													.10				.10			0.71
Beattyville	Kentucky			T.					T.				.56			.12		.28		.12	.78					.18		.08	.20				2.32
Beaver Dam	Green	.25	.05	.02									.70													.36				.80			2.18
Berea	Kentucky		2.20	.35								.10	.25				.05			.06					T.		.03	.72					3.76
Blandville	Mississippi		.51							.27	2.78	.52	1.37												T.			T.			1.22		6.67
Bowling Green	Green			1.55			T.						.88				1.06											.08				.05	3.62
Burnside	Cumberland				.27		T.						.35			T.					T.			.25		T.		1.60	.25	T.		T.	2.72
Calhoun	Green		1.28	T.						T.	T.	T.	1.29												1.02	.04	T.						3.63
Catlettsburg	Big Sandy		.10		.60		.16				.54		.04			.30	.08			.04	.46				.56	.34			.06			.08	3.36
Earlington	Green		2.08	.02									.79													.45			.11			T.	3.45
Edmonton	do		.67	.18										.27	.87											.04				.07			2.10
Eubank	Cumberland			.45									.56								.21								.80				2.22
Falmouth	Licking		.32	T.			.29				.14		.40			.61					.38				.02	.40		.20					2.85
Farmers	do				.25		.05						.27			.50				.95				.32	.53			.18	.02			.09	2.97
Frankfort	Kentucky		.32		T.						.23		.19							.13	.54					.30		.10					1.77
Franklin	Green		.37								.25	1.67																.06					2.78
Greensburg	do			.08									.58															.49					0.70
High Bridge	Kentucky		.02										.15								.46					.11		.04					0.94
Hopkinsville	Cumberland	.05	.10	.20									1.50													.17		.15	.05				2.52
Irvington	Ohio		.94										.27							.05					.23				.50				1.49
Leitchfield	Green		.22										.45			.12									.23		.05						1.07
Lexington	Kentucky	.01		T.							.14	1.07	.02		T.	.11	.27		.29	.10					.05		.37	T.					2.43
Loretto	Salt		.10	.02								.03	.38												T.				1.00				1.53
Louisa	Big Sandy		.30		.14		.07				.04					.33	1.12			.35	.83				.50				.20			.05	3.93
Louisville (1)	Ohio	.02	T.							T.		.02	.36		T.	.01	T.			.34					.49		.24	T.					1.48
Louisville (2)	do		.08								T.	.08	.31			.01	T.			.38					.53		.02	.01				.07	1.40
Marion	do	.91	T.							T.	.20	T.	.91												.22								2.24

TABLE 2.—*Daily precipitation for July, 1913. District No. 3*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
***Kentucky*—Contd.**																																	
Maysville ||	Ohio		.30				.13			.03	.26		.23	.14		.79				.12	.13				T.	.50		.07	.04	.23		.23	3.20
Middlesboro	Cumberland											.25	.05		.02										.22	.05	.15	.34					1.08
Mt. Sterling ||	Licking		.04	T.	T.		.22				.10		.58	.04		.47					.51	T.				.33		.15	.45				2.89
Owensboro ||	Ohio		.32										.55												T.	.25			T.				1.12
Paducah ||	do		1.70	T.						.10	2.30		1.50								T.				.04			.10			.04	5.78
Pikeville ||	Big Sandy		.60	.20	.40	.06	.35							.12				.46		.50	.30			.16		1.50			.25	.20			5.10
Richmond	Kentucky			.12			T.		.01				.35			.03		.44		.01	.37							1.63	.11				3.07
St. John ||	Salt	.06	.04								T.		.25													T.							0.35
Scott	Licking	T.	.04				.23			T.		.09	.39		T.	.75	.07			.01					.60		T.	.44					2.62
Shelby City	Kentucky	.40											.24							.05						.03	.09	.09			.47	1.37
Shelbyville ||	Salt		.30										.40								.60					.45							2.75
Taylorsville	do	T.	.02	.01							.15	.01	.22		T.	T.				.83	T.				.35						T.	1.59
Williamsburg ||	Cumberland		T.	.37	.04								.44								.20			.32		T.		.45					1.82
Williamstown ||	Licking		.60	.05			.28				.01		.37	.01		.58				.03	.36				T.	.50		.30				.55	3.64
Tennessee.																																	
Ashwood	Tennessee					.10		T.			2.00		.65												T.			T.			.05	.05	2.75
Benton	do			T.		.10					T.	.30	.76			.33							T.	.29	.48	.98	T.				.18	T.	3.42
Bird's Bridge ||	do		.37		.82	.45							.11	.15		.13					.19					1.48	.02	.04	T.				3.76
Bluff City ||	do		.83		.09	.13							.06	.02							.73					.09			.25			2.20
Byrdstown	Cumberland	.29										.95	.31										.10			.75	.50			.03			2.93
Carthage ||	do			.60								.05	1.38											.13		.10		.32	T.				2.58
Cedar Hill	do	.30	.60							.03	.04	.85	1.20														T.	T.					3.02
Celina ||	do			.10									.57							T.				.18		.03		.13	.42				1.43
Charleston ||	Tennessee			.11	.06	.08						.60	.40	.40		.04								.08	.18		.07	.07	T.			.15	2.24
Chattanooga	do										.05	.94	.64				.01							.38	.86		1.20	.31				.01	4.40
Clarksville	Cumberland	T.	1.22							.01	.44	.06	.70														T.	T.					2.43
Clinton ||	Tennessee			.11		.28						.21	2.10												T.	.70		.20			.15	.09	3.84
Crossville	do			.20							.57	.60	.15										.07		.13	T.	.03			.15	.05	.21	2.16
Dandridge ||	do					.16							.14								.22					.14			.24				0.90
Decatur	do		.06									.66	1.12		.04		T.				T.			1.52	.13	.01	.13	.10			.72		4.49
Dickson	Cumberland	.47									1.00	.40	.85																			.45	3.17
Dover	do	T.	.45									.22	.68																T.	T.	T.		1.35
Dunlap	Tennessee		.30									.82	1.45			.05	.30							.35	.26	.26	.65				.21		4.65
Elizabethton ||	do			.63		.21	.46	1.30	.60	.01				.45	.66		.13	.23	.07					T.			.14	1.05	.78		1.15		7.87
Erasmus	Cumberland		T.	.40			.09					.42	.67										1.15		.27		1.55	T.		.08	T.		4.63
Florence	do		.24								.24	.12	1.24										.03		T.		T.			T.			1.87
Franklin	do	.54	.56							.80	.20	.60																T.				T.	2.70
Hall's Hill ||	do		T.									.30	.97	.03										1.60		.12	T.	.35		.10			3.47
Hohenwald	Tennessee	.07	.12								.16	.03	3.00											2.04			.80	.05		.26	.36		6.69
Iron City	do	T.									2.11	.10	.50											T.			.23	.17		T.			3.11
Jefferson City	do		.86		.26							.56	.11							.29								.29					2.37
Johnson City ||	do		.30			.68							.52			.08	.53								T.		T.	.16			.19	2.46
Johnsonville	do	.78	.76	.04				T.		.05	.04	.52	1.20														.69	.45		.08	.02		4.63
Kingston ||	do			.46								T.	.48	.03										.06	.05	.68		.61	.17	T.		T.	2.54
Knoxville	do	.82	.51	.01	.12						T.	.94	.07			T.								.10	.12	.07	.16	.47			.38		3.77
Lebanon	Cumberland		.20								1.80	.80	.08												T.		.47	T.		T.	T.		3.35
Lewisburg	Tennessee						T.	T.		T.	.17	.02	.95							T.			T.	T.	T.	.11	T.		.05		.41	.10	1.81
Liberty ||	Cumberland			1.15									.85	.05										1.29				.35					3.89
Loudon ||	Tennessee											.03	.59	.06										.06		T.		1.02	.07			.07	1.90
Lynnville	do		T.							T.	.20	T.	1.15											.05	T.					.66	1.15	.60	3.81
McGhee ||	do	.12		.70		.11						.12	.89	.35			.11							.08		.72			.58			T.	3.78
McMinville	Cumberland	.18								.02		.07	.37	.03						.10				33		44		.20		.05			1.79
Maryville	Tennessee																																
Mountain City	do		.58	.66	.37							.07	.60		.02					.41								.45	.22	.03	.29		3.70
Nashville	Cumberland	.47	2.02							T.	.09	.10	1.38												T.	T.	.03	T.			T.	T.	4.09
Newport ||	Tennessee			.68		.15							.05													.50	.20	.05	.17				1.80
New River ||	Cumberland												.41					.15						.05		.37		.25	.46		.45		2.14
Palmetto	Tennessee						T.	T.		T.	.10	.20	.70							.12			.43	.06	T.	T.	.17	T.	T.	T.	T.	T.	1.78
Perryville	do	.13		1.93						.19			.64													20	1.02	.15		.50			4.76
Pinewood	do	.50									1.50	.20	.75																		.77	.46	4.18
Rogersville ||	do		.16	.50		.21							.73					T.			.26					11		.95	.12				3.04
Rugby	Cumberland		T.	.36								.65	.10										T.	T.	.45		.15	.37		.36	T.	T.	2.44
Savannah	Tennessee							T.		.72			1.30											T.		.70	.37	T.		.20		.25	3.54
Sevierville	do	T.		.10	.37	.04						.15	.26												.21	.99	.05	.65			1.40		4.22
Sewanee	do										.11	.46	1.46								.27	.53	1.12					.19			1.02		5.16
Sparta	Cumberland			1.75				T.				.10	.90											.05	.20	.45		.72			.52		4.69
Springville	Tennessee	.05	T.	.02				T.		.09		.98	1.59														.05	.12			.04	.04	2.98
Tazewell ||	do		T.		.37								.35	T.		T.					.23				T.		.28		.37	.16			1.76
Tullahoma	do	.01					.20				.07	.19	1.21										1.08	.21	.46			.20					3.63
Walling ||	Cumberland	1.15		.09							.05		1.05	.01										.10		.15			.30		.20	3.10
Waynesboro	Tennessee									T.	.61	.10	.64			T.				.04			T.	.46	T.	.36	T.	.14		.30	.60	.12	3.37
Wildersville	do	T.	.06									.70	.66															.18	T.	.40		.18		2.18
Worsham ||	Cumberland	.49	.97									.50	1.18														.03				.43		3.60
Yukon	Tennessee									T.	.15	.50	.53										T.	T.	.23	T.	.30		T.				1.71
Alabama.																																	
Bridgeport ||	Tennessee											.12	1.85	.20		.10								.14		.34	.49	.51			.10	.44	4.29
Decatur ||	do										.50	.15	.48	.05											.85	.05	.03				.05		2.16
Florence	do							T.		T.	.18	T.	.57	T.									13	.09	.06	.60		1.10	.01	T.	T.	.29	3.03
Guntersville ||	do	.90										.80	.71	.04							T.			.48	.02	.08	.06			.72	.05	.02	3.88
Madison	do													.60													.23				1.42		2.25
Riverton ||	do		.11		.38						.03	.63	.02	.27												T.	.18	.24	.38		T.		2.24
Scottsboro ||	do										.14	1.72	.64								.02		T.		.24	.07	.36		.38		.15		3.72
Tuscumbia ||	do											.30	.50	.20											.25	.10			.15			.08	1.58
Georgia.																																	
Diamond	Tennessee				.02						T.	.90	.30			.05					.03				.11	T.	.35	T.			1.92		3.68
Mineral Bluff	do	.42											.40													1.30			.05	.40	.09	.42	3.08
North Carolina.																																	
Altapass	Tennessee			.90	.20					.70								.90						.10							1.50		4.30
Andrews	do			1.96	.02							1.17	.95		.03	.05								.06	.10	.68		.77		.40	.14	.02	6.35
Asheville	do		T.	.09	.67								.29	.02						T.	.20		.40	.07	.09	.15	.01	.09	T.	T.	.19	.89	3.16
Banners Elk	do	.37		.25	.37								.62				.10				.10				20	1.90					.46		4.37
Blantyre	do		.15	.10	.10							.50	.23		.22	.10					1.27		.10	.20	.23	.65	.25	.75			T.		4.85

TABLE 2.—*Daily precipitation for July, 1913. District No. 3*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Carolina—Con.																																	
Blowing Rock	G. Kanawha	....	.02	....	1.08	....	....	....	....	....	....	1.86	....	....	....	....	....	....	....	....	....	....	....	....	.14	.44	....	.76	....	1.20	.09	....	5.59
Bryson City ‖	Tennessee	.35	....	....	....	....	....	....	....	....	....	....	.95	.65	....	....	....	....	....	.07	....	....	....	....	.25	.12	.13	.95	.70	....	.05	.06	4.28
Cane River	....do....	.04	....	....	.07	....	....	....	....	....	....	.05	.11	....	....	....	....	....	....	.21	....	....	....	.06	.37	.53	.17	.40	.15	.40	.11	.01	2.68
Cullowhee	....do....	....	.02	T.	.05	....	....	....	....	....	....	.53	.46	....	....	.03	.02	....	....	....	....	....	....	.05	....	....	.50	.73	.14	.06	.22	.59	3.40
Eagles Nest	....do....	....	....	.13	.09	.45	....	....	....	....	.03	.23	.52	....	.24	.05	....	....	....	....	.03	....	....	....	.11	.04	.60	.37	....	....	.03	....	2.92
Ellijay	....do....	....	....	....	.10	....	....	....	....	....	....	.76	.44	....	....	....	....	....	....	....	....	....	....	T.	.21	.15	.04	.26	.70	.36	.43	.67	4.12
Highlands	....do....	....	....	....	.70	....	....	....	....	....	....	.80	.95	....	....	.40	....	....	....	....	2.35	....	.42	.25	....	.22	.23	.52	1.22	1.00	.70	.55	10.31
Hot Springs	....do....	.18	T.	....	T.	....	....	....	....	....	T.	.12	.07	....	....	....	....	....	....	....	....	....	....	....	.34	.47	.09	....	....	.10	....	....	1.37
Jefferson	G. Kanawha	T.	....	.46	.55	....	....	....	....	....	.82	T.	.10	....	T.	....	T.	....	....	.17	....	....	T.	....	....	.22	T.	....	.61	T.	....	....	2.93
Marshall ‖	Tennessee	....	....	....	....	.09	....	....	....	....	....	....	.47	....	.04	....	....	....	....	....	T.	....	....	....	T.	.37	.26	....	....	T.	....	.26	1.49
Murphy ‖	....do....	....	....	....	....	.25	....	....	....	....	....	.11	1.91	.32	....	....	....	....	....	....	....	....	....	....	.26	T.	1.22	.16	....	1.34	.11	5.68
Rock House	Savannah	....	....	.30	.59	.19	....	....	....	....	T.	.84	1.05	....	....	.05	....	....	....	....	1.35	.05	.20	.09	.35	.11	.06	.63	.26	.46	.27	T.	6.85
Transon	G. Kanawha	....	....	....	.75	....	....	....	....	....	....	.20	T.	....	....	....	T.	....	....	....	....	....	....	T.	.29	....	....	.27	....	....	....	.54	2.05
Waynesville ‖	Tennessee	....	T.	.05	T.	.20	.05	....	....	....	....	T.	.35	.44	....	.20	.05	....	....	....	....	.13	....	....	T.	.08	.21	.52	.14	....	T.	.25	2.67
Virginia.																																	
Blacksburg	Kanawha	....	.47	1.00	2.49	....	....	....	....	....	.31	.10	.11	....	.18	.02	....	.07	....	.14	....	....	.04	....	.35	.05	.01	.04	....	....	....	....	5.38
Burkes Garden	Tennessee	....	.20	T.	.15	....	....	....	....	.13	.20	.50	.44	....	....	....	....	.57	....	.42	....	....	.34	....	.20	....	....	....	.37	....	....	....	3.52
Elk Knob	....do....	....	.67	....	.08	....	....	....	....	....	....	.42	.04	....	....	T.	.05	....	....	.53	....	....	....	....	.18	.08	.02	....	.01	T.	.02	.07	2.27
Emory	....do....	....	.05	....	....	....	....	....	....	....	....	....	.65	....	.06	.03	....	....	....	....	....	....	....	....	....	....	....	....	.04	.03	....	....	0.86
Ivanhoe ‖	Kanawha	....	....	1.10	1.00	.30	....	....	....	....	....	....	.26	.06	....	.06	.02	.05	.05	.14	.14	....	....	.24	T.	.05	....	....	T.	.60	.02	....	4.09
Max Meadows	....do....	....	.21	.67	.19	....	....	....	....	....	T.	.18	.15	....	T.	.11	T.	T.	....	.12	.18	....	T.	T.	....	T.	....	.02	1.05	T.	....	....	2.88
Mendota ‖	Tennessee	....	....	....	.70	....	....	....	....	....	....	....	.35	.15	....	....	....	....	....	....	.12	....	....	....	.05	....	....	....	....	....	....	....	1.37
Mountain Lake	Kanawha	....	.65	1.25	1.28	....	....	....	....	....	.60	....	....	....	....	.18	....	.15	....	.55	....	....	....	.08	....	....	....	.42	....	....	....	....	5.16
Radford ‖	....do....	....	.20	....	.32	.26	....	....	....	....	....	.22	T.	....	....	.46	....	T.	....	....	T.	....	....	....	....	.50	....	....	.20	....	....	....	2.16
Speers Ferry ‖	Tennessee	....	.30	....	....	.06	....	....	....	....	....	....	.27	....	....	....	....	....	....	....	....	....	....	....	.04	.08	....	....	.16	1.10	....	....	2.01
Wytheville	Kanawha	....	T.	.22	.32	....	....	....	....	....	.12	.23	.06	....	.09	....	T.	.04	....	.26	....	....	T.	....	....	.01	....	.05	1.15	.11	....	....	2.66

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 3, Ohio Valley.*

Date.	Pennsylvania.				West Virginia.																Ohio.							
	Greenville.		Pittsburgh.		Charleston.		Elkhorn.		Elkins.		Glenville.		Huntington.§§		Morgantown.		Parkersburg.		Wheeling.§§		Canton§§.		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	97	67	93	72	95	73	92	67	94	65	100	70	98	71	95	71	99	72	95	67	97	69	97	75	97	73	95	72
2	85	64	84	72	95	73	88	66	87	67	93	74	90	71	94	68	89	73	88	65	85	67	87	75	88	71	89	71
3	91	55	90	67	93	76	84	66	89	65	97	74	92	71	93	64	95	71	95	64	92	60	94	75	94	71	92	72
4	93	61	92	74	94	71	82	65	90	62	92	65	93	70	.....	67	95	71	95	67	96	68	94	76	92	71	92	74
5	91	69	86	68	92	70	84	63	88	64	90	63	94	74	88	69	94	68	90	72	91	71	95	72	94	72	93	73
6	78	63	77	58	90	75	81	65	79	61	88	58	88	70	80	64	83	67	84	60	80	63	85	68	81	60	81	62
7	75	46	72	54	83	60	77	50	70	50	80	50	83	59	75	55	78	59	82	51	77	46	82	60	78	54	80	56
8	82	56	80	55	86	56	78	49	78	46	88	51	91	55	83	52	87	58	88	55	85	47	89	68	88	60	87	60
9	66	53	81	65	90	65	82	58	81	52	90	53	94	66	83	64	90	68	87	53	80	66	93	68	89	65	90	64
10	84	55	74	59	88	66	80	69	78	55	91	55	88	69	79	65	79	65	83	61	78	54	82	66	79	60	80	60
11	79	44	83	54	87	66	75	63	83	53	93	54	86	63	85	52	85	58	87	53	81	44	89	62	84	56	85	58
12	84	57	78	69	87	72	75	65	77	63	88	53	86	67	83	60	83	65	89	56	84	59	86	70	83	70	82	68
13	87	57	85	68	93	70	83	58	85	60	90	56	94	69	85	66	90	70	80	66	89	62	91	71	90	68	89	66
14	79	66	81	65	88	69	82	62	82	60	91	58	91	73	83	62	86	64	84	61	85	64	91	72	85	66	88	65
15	81	51	80	59	86	69	82	63	76	62	88	56	88	68	82	72	86	70	86	65	83	57	92	69	88	66	88	66
16	83	48	82	59	88	69	87	67	81	57	89	58	89	70	82	55	83	64	87	57	85	52	85	70	81	66	81	63
17	83	62	85	64	93	66	89	63	86	57	93	64	98	71	86	60	93	67	88	60	90	64	97	77	93	70	91	74
18	84	61	82	66	93	71	90	66	82	69	93	68	98	71	.....	.....	90	68	87	65	86	64	96	75	91	69	90	71
19	83	57	80	62	90	68	88	63	85	65	95	65	85	70	84	63	87	69	81	65	82	60	86	72	84	68	83	66
20	83	54	79	63	84	65	78	58	80	59	90	62	86	65	.....	.....	84	67	87	60	83	55	84	66	82	63	80	62
21	79	50	77	58	82	67	81	56	75	54	84	64	86	59	79	54	78	61	83	55	80	52	81	61	80	58	80	58
22	84	42	83	57	86	60	84	56	84	51	90	65	90	59	85	55	85	57	88	56	84	49	89	65	85	62	84	60
23	89	50	85	68	88	70	83	61	84	59	88	62	88	62	86	66	89	64	89	57	90	54	91	70	89	65	88	69
24	77	62	71	63	85	68	86	60	77	61	84	60	79	70	85	62	74	68	72	70	78	65	81	67	80	63	79	62
25	86	58	75	56	79	67	83	60	77	55	91	65	83	64	83	61	76	60	78	56	78	47	79	60	77	57	79	55
26	84	46	85	60	86	63	84	62	85	51	93	66	91	59	86	57	87	60	88	55	88	54	91	64	88	58	87	59
27	89	56	88	69	90	69	86	64	86	60	97	68	88	65	89	67	88	69	92	57	92	60	91	72	91	62	90	70
28	94	63	89	73	92	69	87	77	89	65	99	65	96	70	90	72	93	72	94	70	94	67	95	76	93	70	92	71
29	93	64	91	71	92	73	90	65	90	64	99	66	95	72	91	68	94	73	94	68	94	68	97	77	94	74	96	72
30	92	65	92	74	92	75	93	61	92	67	100	75	95	72	92	74	98	70	96	71	95	70	101	75	97	74	99	73
31	94	56	90	71	94	74	92	66	91	63	98	74	97	70	92	67	93	72	94	68	95	60	100	75	96	67	98	69
Mns.	84.8	56.7	82.9	64.3	89.1	68.5	84.1	62.4	83.3	59.4	91.7	62.5	90.3	67.3	85.6[e]	63.2[b]	87.5	66.5	87.5	61.5	86.6	59.3	90.0	70.0	87.5	65.5	87.4	65.8

Date.	Ohio.				Indiana.												Philo, Ill.		Kentucky.									
	Marion.		Waverly.§§		Butlerville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.				Beattyville.§§		Bowling Green.§§		Earlington.§§		Greensburg.§§		Lexington.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	97	72	96	69	97	67	96	74	92	74	90	72	95	72	88	71	90	74	95	68	98	72	99	72	98	72	93	73
2	92	69	88	70	94	70	90	74	87	72	90	69	92	70	92	84	91	70	91	68	94	73	90	73	94	74	88	71
3	90	63	92	70	95	67	90	73	92	72	92	67	93	71	93	81	93	71	94	69	92	68	93	71	96	69	90	70
4	95	70	93	70	94	73	92	74	92	76	89	71	95	70	92	82	94	72	96	68	95	70	96	72	98	70	91	74
5	92	70	94	72	98	75	96	77	94	75	91	73	97	75	96	86	95	73	97	67	97	70	98	74	100	68	92	73
6	85	63	84	67	90	63	90	74	82	66	82	62	88	65	93	74	86	72	90	67	93	69	94	66	95	68	85	67
7	79	47	81	51	88	57	87	68	79	60	82	51	89	59	86	.....	87	60	86	61	88	60	90	60	86	51	80	61
8	90	52	87	51	94	66	94	69	90	66	91	55	95	63	92	.....	96	68	90	55	97	62	100	61	98	59	89	67
9	88	60	93	59	97	69	92	72	91	66	82	63	95	64	94	.....	91	66	94	60	92	64	93	70	95	66	91	70
10	81	55	83	62	87	64	85	70	79	61	78	55	85	56	83	.....	79	57	88	65	92	71	94	71	93	71	83	67
11	89	49	85	55	91	62	85	70	87	62	85	52	93	56	88	61	92	53	89	65	89	67	96	70	92	67	85	67
12	84	70	84	63	87	65	83	70	84	68	83	68	89	69	85	69	86	68	86	67	84	65	87	69	86	67	82	68
13	91	62	90	63	92	67	90	69	90	67	91	63	98	63	90	70	98	60	91	59	92	65	93	67	93	63	88	68
14	85	64	90	73	93	74	91	75	90	66	88	63	95	67	90	74	95	67	91	65	92	70	95	74	97	68	89	72
15	88	67	88	67	94	67	91	77	91	67	94	66	98	70	94	77	96	74	95	66	94	71	96	74	95	70	90	66
16	87	60	84	67	92	73	95	76	90	75	88	67	99	72	91	74	99	71	95	67	94	70	105	72	100	70	87	70
17	90	69	95	71	103	74	101	76	93	75	87	74	100	73	103	75	100	73	98	67	100	71	103	74	104	69	98	73
18	88	65	94	66	102	70	102	78	90	70	85	63	96	66	98	73	91	65	104	69	103	71	104	74	109	70	99	72
19	86	65	89	69	88	64	87	68	83	66	83	61	89	61	90	72	86	65	91	67	93	73	92	76	96	70	82	62
20	78	59	85	59	87	56	88	70	80	61	73	56	86	57	92	57	83	57	96	60	93	64	94	61	96	60	81	64
21	82	54	83	54	85	54	83	62	79	58	81	52	85	53	88	61	81	53	86	57	89	60	89	57	92	58	80	58
22	88	56	89	53	91	62	90	64	85	62	85	50	92	57	92	60	90	.....	92	54	95	58	100	54	97	54	88	62
23	80	59	89	63	94	64	91	70	88	65	82	58	95	56	81	69	88	54	94	61	96	61	97	64	97	64	89	67
24	80	65	76	68	87	67	78	69	79	60	78	63	84	67	82	54	82	62	94	64	89	61	88	72	94	68	78	68
25	81	49	78	55	83	53	86	62	79	54	81	45	87	50	87	63	82	47	88	65	92	65	91	63	95	66	80	60
26	91	52	88	52	90	63	88	70	88	63	89	55	95	61	.....	.....	93	60	95	59	93	68	95	67	94	65	88	64
27	86	69	91	60	92	70	93	75	92	72	93	68	100	71	92	74	97	73	93	64	97	69	98	74	101	71	91	69
28	94	67	95	68	93	71	94	75	94	73	93	71	99	69	92	70	96	75	98	67	98	70	99	73	101	69	90	72
29	97	71	97	68	101	72	97	76	97	73	96	66	103	69	96	72	103	68	99	65	101	70	103	72	104	69	95	72
30	97	70	100	68	103	70	101	76	102	77	99	69	105	70	97	73	105	70	103	67	101	72	103	74	104	72	*99	75
31	93	64	96	67	100	73	96	75	98	69	99	65	103	72	98	73	99	71	103	68	101	70	101	71	105	69	96	73
Mns.	87.9	62.2	88.9	63.5	93.0	66.5	91.0	71.9	88.3	67.5	87.1	62.4	94.0	65.0	91.2[a]	71.1[a]	91.7	65.6[a]	93.6	64.2	94.3	67.4	96.0	69.1	96.9	66.7	88.3	68.2

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 3*—Continued.

Date.	Kentucky.						Tennessee.														Decatur, Ala.§§		Asheville, N. C.		Virginia.			
	Louisville.		Maysville.§§		Williamsburg.§§		Chattanooga.		Johnson City.§§		Knoxville.		Nashville.		Palmetto.		Sparta.		Waynesboro.						Blacksburg.		Wytheville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	95	76	101	70	96	72	92	74	84	70	94	74	92	71	97	73	93	70	95	68	94	74	88	65	92	66	91	67
2....	90	74	92	70	95	68	91	74	99	71	94	72	92	72	93	72	91	71	93	68	89	73	90	66	92	68	89	68
3....	91	74	94	71	93	68	95	73	93	68	92	72	91	72	94	72	94	70	91	74	94	70	89	69	83	64	85	65
4....	93	76	98	69	95	64	97	73	94	69	93	72	93	74	98	70	93	71	97	68	95	70	87	66	83	64	85	66
5....	95	77	99	72	93	65	97	71	90	66	94	70	94	73	98	72	96	75	97	67	97	70	86	64	86	65	86	65
6....	87	73	89	66	89	60	94	78	90	71	92	74	92	77	99	75	90	70	96	69	99	75	85	65	82	64	83	70
7....	83	65	85	53	86	54	85	69	84	58	82	66	85	70	89	61	83	58	89	60	91	66	76	58	73	56	74	53
8....	93	67	92	59	94	58	91	65	90	54	87	62	94	64	96	58	93	58	97	56	95	61	81	51	80	47	81	47
9....	92	74	98	63	93	61	91	70	89	60	89	68	86	74	92	72	93	63	84	64	96	67	82	62	85	54	84	55
10....	88	71	88	66	93	68	83	73	91	67	89	72	92	70	92	69	91	67	93	65	82	70	82	61	81	61	85	66
11....	88	69	90	59	86	66	80	70	91	69	82	68	86	70	85	70	86	71	87	68	84	69	78	64	82	63	81	66
12....	85	70	87	62	83	69	81	65	80	68	80	71	80	67	83	68	81	69	80	68	83	72	76	64	79	64	78	64
13....	91	70	94	65	93	64	89	69	88	68	88	68	89	70	90	67	89	67	90	66	90	68	85	61	85	58	82	60
14....	91	75	95	71	92	68	91	70	88	66	89	71	91	76	92	70	91	70	93	69	92	70	86	63	85	62	84	66
15....	92	75	94	69	92	66	89	73	89	67	90	72	90	75	92	70	92	68	93	67	93	72	84	67	79	63	81	66
16....	93	78	88	69	97	67	93	71	88	69	94	71	92	74	96	70	94	68	94	67	95	70	87	65	86	58	86	62
17....	102	77	102	69	98	66	95	74	94	67	96	73	95	76	99	74	96	71	97	67	96	74	90	65	87	62	88	66
18....	104	80	100	70	105	75	98	78	98	71	100	76	98	77	101	71	100	70	99	66	99	72	93	68	89	66	90	70
19....	84	64	87	70	97	72	98	77	95	71	98	76	94	76	102	74	94	70	90	68	101	74	94	68	90	68	88	63
20....	88	67	88	61	92	68	91	74	89	64	89	71	91	69	93	66	90	70	90	62	93	72	82	65	83	58	82	59
21....	85	60	88	56	90	56	92	68	94	59	89	65	86	68	91	61	90	58	88	58	92	64	84	58	81	53	79	55
22....	90	65	91	56	88	54	85	70	95	60	88	65	88	63	86	60	89	59	91	58	91	67	77	63	79	52	79	52
23....	92	70	94	59	92	62	87	70	90	65	87	69	92	68	89	69	89	69	91	64	89	69	81	62	84	58	84	63
24....	78	66	77	60	87	72	84	68	86	67	84	68	84	70	83	68	82	66	88	68	83	66	83	62	84	60	82	66
25....	83	59	84	56	90	68	84	71	87	68	84	70	85	72	86	69	88	69	89	69	84	69	76	66	81	64	79	66
26....	90	67	95	55	90	61	85	70	89	65	83	69	89	72	89	71	83	69	87	68	91	71	75	67	80	59	83	60
27....	95	72	97	59	92	67	88	70	88	67	84	71	91	75	93	71	91	69	90	69	92	72	82	65	86	60	84	62
28....	96	74	99	69	94	70	90	71	92	69	90	69	95	75	93	69	92	70	93	67	95	70	86	65	87	64	87	65
29....	97	76	99	69	100	68	94	73	96	67	94	72	97	77	96	72	94	70	96	69	94	72	88	65	92	63	87	65
30....	101	76	104	69	101	68	91	73	97	68	96	73	98	76	99	71	88	70	95	67	95	71	88	67	92	64	92	69
31....	101	77	101	69	102	67	95	69	93	69	95	70	97	73	97	70	94	69	93	69	95	71	89	65	94	64	91	69
Mns..	91.4	71.4	93.2	64.5	93.2	65.5	90.2	71.4	90.7	66.4	89.9	70.3	90.9	72.1	93.0	69.2	90.6	67.9	91.8	66.2	92.2	70.0	84.2	63.9	84.7	61.0	84.4	62.9

a, b, c, etc., indicate, respectfully, 1, 2, 3, etc., days missing from the record.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 4, THE LAKE REGION.

Prof. HENRY J. COX, District Editor.

GENERAL SUMMARY.

The warm weather which prevailed generally over the Lake region during the closing week of June continued with unabated severity over practically all portions of the district during the first five days of July, and maximum temperatures well over 90° were experienced. On the 6th a cool high area from the west moved across the middle portion of the country and brought much needed relief to all sections of the Lake region. No unusually hot weather again prevailed until the last week of the month, the temperatures from the 6th to the 26th, inclusive, averaging close to the normal with alternating short periods of moderately warm and cool weather.

The total precipitation for the month was generally ample and quite favorable for growing crops, the lack of sufficient moisture being confined to eastern sections of the district and to portions of the lower Michigan Peninsula. In New York State the average rainfall for the month for all stations was the least on record for any July, the drought being felt principally in the counties lying south of Lake Ontario. Over much of this area, less than 1.50 inches of rain fell during the entire month.

Thunderstorms were unusually numerous, and such as were destructive to life and property will be referred to briefly in a separate paragraph. There were many clear days during the month, and on the whole the pleasant weather was most conducive to farming operations and outdoor pursuits, except where heavy rains interfered locally with harvesting.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

Portions of States.	Mean temperature.	Departure from normal.	Mean daily range.	Mean precipitation.	Departure from normal.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days.				Prevailing wind direction.
								With 0.01 inch or more.	Clear.	Partly cloudy.	Cloudy.	
Minnesota	61.3	−3.0	17.4	5.34	+1.44	2.40	0	11	12	11	8	ne.
Wisconsin	67.4	−1.2	17.8	5.38	+1.69	2.00	0	12	15	10	6	sw.
Illinois	75.0	+2.6	15.1	3.30	−0.34	1.75	0	8	19	6	6	ne.
Indiana	74.4	+1.3	21.6	3.92	+0.86	2.35	0	9	18	9	4	sw.
Upper Michigan	63.1	−1.3	18.4	4.21	+0.66	2.26	0	11	15	9	7	w.
Lower Michigan	70.1	+0.3	20.2	2.94	−0.03	2.68	0	7	16	10	5	sw.
Ohio	73.7	+0.7	16.8	4.46	+0.76	3.10	0	11	17	11	3	sw.
Pennsylvania	70.4	−1.4	13.9	1.36	−1.85	0.36	0	12	11	17	3	w.
New York	68.7	0.0	19.8	2.33	−1.67	2.25	0	10	16	11	4	w.
Vermont	67.6	−0.2	21.6	3.66	−0.67	1.84	0	14	9	14	8	s.

TEMPERATURE.

The temperature in the Lake region during July, 1913, ranged from an average daily departure of −5.6° at Duluth, Minn., in the extreme western portion of the district, to average temperatures of nearly normal values in central and eastern sections. However, at Chicago the monthly excess in temperature was 2.6°, and there were but few stations in the district having a departure exceeding that amount. The month began and ended with periods of high temperature, but although maximums of over 100° were reported at several stations in southern sections during the latter half of the third decade, these readings usually occurred on but a single day and no records for protracted heat appear to have been broken.

Minimum temperatures were not unusually low in any portion of the district and occurred on varying dates in either the second decade or the first half of the third. At Lake Placid Club at an elevation of nearly 2,000 feet in the Adirondack Mountains of New York State, a minimum of 33° was recorded on the 12th, while in most sections readings below 50° were generally reported.

Frost: Light frost formed in the lowlands of northern Lower Michigan on the mornings of the 7th and 25th, but no damage resulted.

PRECIPITATION.

The precipitation was well distributed, both as regards time of occurrence and territory covered, rains, mostly from thunderstorms, being reported from at least some portion of the district on each day of the month. Over northwestern sections the total amounts were generally in excess of the average and several stations in Wisconsin recorded monthly falls of over 7 inches. In the central portion the rainfall was nearly normal in amount, while in Pennsylvania, New York State, and Vermont the deficiency was most marked, the showers, although occurring frequently, being light in character. At Appleton and Romulus, N. Y., both located in rich farming and fruit sections, the precipitation during the month was but 0.84 and 0.67 inch, respectively, and at a few stations, the deficiency in rainfall exceeded 3 inches. In fact, as stated before, the month was one of the driest Julys on record in New York State.

Snow.—A trace of snow was reported from Gabriels, N. Y., on the 8th.

SEVERE STORMS.

On the evening of the 4th an unusually severe thunderstorm occurred at Duluth, Minn., concerning which the official in charge reports as follows:

> During the heavy storm of the 4th lightning struck and destroyed two cottages north of the city. The feed wires of the Great Northern Power Co. were also struck by lightning, cutting off the city lights and street railway power for about 15 minutes. The heavy downpour about 10 p. m. caused thousands of dollars damage by flooding basements, washing out roads and gardens, and weakening railroad tracks.

On the same day electrical storms did considerable damage in northern Ohio, two men and a boy being killed by lightning while attending a celebration at the

Medina Fair Ground; a glove and mitten factory in Tiffin, valued at $15,000, was totally destroyed, as were also a number of large barns. In Cleveland there were two severe storms which resulted in the injury of 14 people and caused street railway, electric light and telephone companies much trouble. Excessive precipitation occurred during these storms, flooding streets and basements, the total rainfall being 2.59 inches. On the morning of the 4th a heavy thunderstorm damaged property in the vicinity of Alpena, Mich., to the extent of several hundred dollars. The display of lightning was reported to have been remarkably brilliant and ball lightning was observed in many homes. In several instances screws in door knobs were said to have been loosened by the lightning.

Lakes Erie and Ontario were swept by a severe summer gale on the 12th–13th, the maximum velocity at Buffalo being 66 miles an hour from the southwest on the 12th. Much damage was done in that city and also in Rochester, N. Y., to roofs and buildings, and many trees and poles were felled by the high wind, injuring and bringing to the ground electric and telephone wires. In northern Ohio the wind was followed by severe thunderstorms, which in some sections continued during most of the night of the 13th–14th. In western and middle counties of Ohio, unusually heavy 24-hour rainfalls occurred, Bucyrus reporting 2.40 inches, Lima 2.35 inches, and Upper Sandusky 3.48 inches. As a result of the heavy precipitation many of the smaller streams in the southern counties were bank full and the Sandusky River above Tiffin rose nearly to flood stage. In Crawford, Hardin, Huron, Marion, and Wyandot Counties 23 barns were reported to have been destroyed by lightning, and the heavy rain damaged wheat, corn, and oats. Hail fell in portions of Huron, Medina, and Wayne Counties, the hailstones being unusually large and causing a great amount of injury to trees, gardens, and greenhouses.

Severe wind storms accompanied by destructive lightning swept over portions of northern Indiana on the 14th and 15th, doing great damage in Porter and St. Joseph Counties. In some localities the rainfall assumed the proportions of a cloudburst, washing away railroad tracks and prostrating corn and wheat. The rainfall at Whiting, Ind., on the 14th amounted to 2.35 inches.

On the 14th also a heavy thunderstorm occurred at Grand Rapids, Mich., three houses being struck by lightning and the lighting systems in the city being disabled. Both telephone and telegraph companies were also badly crippled.

A severe storm, accompanied by a heavy fall of rain and hail in the northern part of the city, passed over Buffalo on the 20th. The hailstones were quite large and were so numerous as to whiten the streets.

The northern portion of New York State was visited by exceptionally severe wind, hail, and electrical storms on the evening of the 24th, ruining crops, especially corn and grain, and causing thousands of dollars' damage. Two lives were lost, due to the overturning of a small boat by the high wind, on the St. Lawrence River.

During the afternoon of the 28th an unusually heavy storm occurred at Tiffin, Ohio, which caused immense loss to property. Buildings were unroofed, trees and chimneys blown down, and skylights and windows were shattered, allowing the buildings to be flooded by the downpour of rain.

Severe thunderstorms were reported from northern Vermont on the 29th.

The most severe wind storm on record at Houghton, Mich., occurred on the morning of the 31st, concerning which the observer at that station reports as follows:

> The day and night preceding had been very oppressive, a temperature of 81° occurring at 5 p. m. of the 30th. The wind was light and the humidity high. At 4 a. m. of the 31st a temperature of 81° was again reached, although the highest point was about 3.50 a. m., just before the storm broke. There were 8 miles of wind recorded from 3 a. m. to 3.53 a. m., the direction being southwest. At 3.53 a. m. the wind shifted to west and the next mile was made at the rate of 52 miles an hour, a high velocity being maintained for 25 minutes. The maximum for a 5-minute period was 48 miles an hour. The temperature dropped with the coming of the storm from 81° to 64°. Just as the storm broke, a very peculiar copper colored cloud was noticed in the southwest; one portion seemed to have a funnel shape, but it did not reach the ground in its passage over the city, disappearing rapidly in the northeast. The hills on the north side of Portage Lake are about 500 feet high and this cloud passed well above the surface of the ground even on the brow of the highest hill. There was evidence that the storm was tornadic in character, as the large plate-glass front of the Gately-Wiggins store fell outward.
>
> A number of shade trees in both Houghton and Hancock were blown down and telephone and electric light circuits badly damaged. Watchmen at the Copper Range dock report that the waves came completely over the dock, it being the first time on record that this has occurred.

MISCELLANEOUS.

A seiche from 4 to 6 feet in height was reported to have swept Chequemegon Bay at Ashland, Wis., on the 31st, resulting in the closing of a shingle and planing mill and causing minor damage. The wave came from the east against a brisk west wind, and was doubtless caused by a sudden change in barometric conditions over that portion of Lake Superior.

JULY LAKE LEVELS.

The following data are from the report of the United States lake survey:

	Lake Superior.	Lakes Michigan, Huron.	Lake Erie.	Lake Ontario.
	Feet.	*Feet.*	*Feet.*	*Feet.*
Above tidewater at New York	602.57	581.26	573.58	247.83
Above or below:				
Stage of June, 1913	+0.26	+0.06	−0.25	−0.19
Stage of July, 1912	+0.22	+0.79	+1.02	+0.82
Mean stage of July last 10 years	+0.03	+0.19	+0.74	+0.88
Highest recorded stage	−1.25	−2.32	−0.83	−0.89
Lowest recorded stage	+1.09	+1.36	+2.12	+3.24
Probable change during August	+0.10	0.00	−0.20	−0.30

In connection with the above data, it is interesting to note that according to press reports, the St. Lawrence River reached its highest mark in many years at Ogdensburg, N. Y., on the 16th. Docks and wharves were covered with water, and boathouse and cottage owners sustained heavy losses. In some places even the piers were completely submerged.

TABLE 1.—*Climatological data for July, 1913. District No. 4, Lake Region.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota.																				
Cloquet	Carlton	800	2	61.2	.....	83	8	36	24	38	6.93	.....	1.90	0	15	6	17	8	nw.	State Forest Exp. Station.
Duluth	St. Louis	1,133	42	60.4	− 5.6	82	8	43	11	25	6.18	+ 2.53	2.33	0	16	5	12	14	ne.	U. S. Weather Bureau.
Floodwood	do	1,257	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. H. Schussler.
Grand Marais	Cook	.....	.....	59.0	.....	90	6	39	28	42	4.18	.....	1.48	0	8	19	9	3	e.	T. J. Joynes.
Stephens Mine	St. Louis	1,500	6	62.4	.....	90	30	36	25	41	4.24	.....	1.20	0	7	16	8	7	w.	Oliver Iron Mining Co.
Two Harbors	Lake	614	19	61.0	− 2.6	87	8†	40	12	38	3.36	− 0.74	1.24	0	8	3	15	13	ne.	G. W. Watts.
Virginia	St. Louis	1,434	19	64.0	− 0.8	90	30	40	24	37	7.18	+ 2.53	2.40	0	13	21	6	4	nw.	Oliver Iron Mining Co.
Wisconsin.																				
Appleton	Outagamie	795	12	71.5	+ 0.5	93	30†	48	11†	34	7.02	+ 2.34	1.94	0	10	15	15	1	se.	Wm. O. Thiede.
Ashland	Ashland	615	22	63.6	− 4.4	95	30	40	10†	45	5.81	+ 1.07	1.35	0	14	14	9	8	sw.	Agr. Exp. Station.
Bayfield	Bayfield	635	4	64.0	− 4.2	86	30	48	10†	31	4.75	+ 1.73	1.38	0	15	7	15	9	ne.	Rev. Sabinus Mollitor.
Cecil	Shawano	804	15	67.8	− 1.2	90	29†	44	21†	36	6.41	+ 2.61	1.20	0	12	12	14	5	sw.	Louis W. Schmidt.
Cornucopia	Bayfield	640	1	60.6	.....	79	8	44	2†	27	4.88	.....	2.01	0	15	6	19	6	ne.	Reed Fruit Co.
Crandon	Forest	1,060	18	64.8	− 2.0	87	30	40	21	33	6.16	+ 2.73	1.76	0	13	17	7	7	nw.	Frank Shoemaker.
Florence	Florence	1,293	22	65.0[a]	− 0.8	89[a]	3	38[a]	20	48[a]	4.43	+ 0.31	0.84	0	14	23	5	3	nw.	Fred S. Evans.
Fond du Lac	Fond du Lac	800	27	70.2	− 0.1	95	27	43	21	39	5.03	+ 1.49	1.07	0	13	28	1	2	w.	Edward A. Seeley.
Grand River Locks	Marquette	770	17	71.0	.....	96	30	45	10	35	4.28	+ 0.06	1.35	0	9	25	4	2	s.	Jerry Parkinson.
Green Bay	Brown	617	27	68.8	− 0.7	90	3	50	21	28	4.91	+ 1.40	1.14	0	14	4	12	15	sw.	U. S. Weather Bureau.
High Falls	Marinette	1,125	1	66.8	.....	91	3	36	21	43	5.86	.....	1.86	0	13	17	8	6	se.	No. Hydro-Elec. Pow. Co.
Iron River	Bayfield	1,096	4	64.2	.....	94	30	40	10	38	7.27	.....	1.20	0	16	15	11	5	sw.	Winfield E. Tripp.
Kewaunee	Kewaunee	590	4	64.1	.....	85	1†	44	21	33	5.11	.....	0.89	0	9	19	5	7	.....	Capt. N. Craite.
Manitowoc	Manitowoc	616	62	66.2	− 1.4	86	1	46	21	29	5.39	+ 1.66	1.30	0	13	7	17	7	sw.	Miss Johanna Lups.
Menasha	Winnebago	764	16	.....	.....	.....	.....	.....	.....	.....	6.18	+ 2.53	1.71	0	10	22	7	2	sw.	Geo. T. Allanson.
Menomonee Falls	Waukesha	842	4	70.3[b]	.....	94[b]	3†	43[b]	11	38[b]	5.53	.....	1.24	0	10	17[b]	11[b]	1[b]	nw.	Arthur H. Christman.
Milwaukee	Milwaukee	681	43	70.0	+ 0.3	93	27	54	21	30	3.59	+ 0.58	1.29	0	11	16	11	4	ne.	U. S. Weather Bureau.
New London	Outagamie	762	17	69.2	− 1.2	92	3	46	21	34	6.22	+ 1.88	1.60	0	12	13	12	6	se.	August H. Pape.
Oconto	Oconto	590	22	68.4	− 0.7	92	3	44	21	34	6.12	+ 2.60	1.65	0	10	16[b]	4[b]	9[b]	w.	Harry M. Lord.
Oshkosh	Winnebago	744	24	69.7	− 1.9	99	30	45	21	38	4.77	+ 0.86	1.36	0	8	20	10	1	sw.	Evan Vincent.
Pine River	Waushara	900	18	68.6	− 1.4	92	30	47	11†	32	4.47	+ 0.36	0.81	0	12	13	17	1	se.	Geo. H. Carpenter.
Plum Island	Door	588	5	66.8	.....	88	1	49	11†	25	5.32	.....	0.85	0	16	15	5	11	sw.	Wm. Robinson.
Plymouth	Sheboygan	843	3	69.2	.....	92	3	44	11	33	3.40	.....	0.76	0	10	16	10	5	se.	Paul O. Feldrappe.
Port Washington	Ozaukee	713	20	67.8	− 0.9	93	27	47	11	27	5.35	+ 2.13	1.32	0	10	15	10	6	se.	Richard C. Kann.
Racine	Racine	633	16	71.8	+ 0.5	97	27	50	11	33	6.47	+ 3.13	1.80	0	12	22	8	1	se.	Daniel Davis.
Ripon	Fond du Lac	1,031	3	70.4	.....	93	4†	49	12	31	3.96	.....	0.76	0	15	14	7	10	w.	Ripon College.
Sheboygan	Sheboygan	831	14	69.1	− 0.7	91	3	48	21	31	5.28	+ 1.86	1.55	0	9	11	18	2	ne.	Louis C. Meyer.
Sturgeon Bay	Door	600	14	64.1	− 1.6	85	1†	38	21	33	4.75	.....	0.90	0	11	11	18	2	sw.	Adam N. Dier.
Superior	Douglas	701	4	61.2	.....	85	8	42	12	34	6.56	.....	2.00	0	17	13	12	6	sw.	Edward B. Banks.
Waupaca	Waupaca	857	18	69.2	− 1.5	96	30	44	21†	36	6.07	+ 2.44	1.60	0	13	14	6	11	nw.	James H. Flagg.
Illinois.																				
Chicago	Cook	823	43	75.0	+ 2.6	99	29	59	21	29	3.30	− 0.34	1.75	0	8	19	6	6	ne.	U. S. Weather Bureau.
Indiana.																				
Auburn	Dekalb	874	17	72.6	+ 0.4	96	30†	43	7	36	2.41	− 1.22	0.80	0	8	23	5	3	sw.	Mrs. Josie B. Kuhlman.
Berne	Adams	849	4	76.0	.....	99	31	48	7	36	5.65	.....	1.94	0	16	19	10	2	sw.	Henry M. Reusser.
Fort Wayne	Allen	856	17	75.1	+ 1.6	95	30	53	7	30	3.65	− 0.01	2.12	0	11	23	7	1	nw.	U. S. Weather Bureau.
Hammond	Lake	598	22	74.9	+ 1.8	100	29	39	23	46	4.15	+ 1.38	1.90	0	7	12	16	3	.....	Carson W. Whitney.
Howe	Lagrange	886	8	73.8	.....	98	29†	45	25	40	3.72	.....	1.95	0	7	23	0	8	sw.	A. A. Wade.
Notre Dame	St. Joseph	712	2	73.0	.....	96	30	51	7	31	3.28	.....	2.02	0	8	7	20	4	nw.	U. S. Weather Bureau.
Whiting	Lake	606	4	75.4	.....	100	29	54	25	35	4.58	.....	2.35	0	9	18	6	7	ne.	D. H. Boyd.
Michigan—Upper Peninsula.																				
Baraga	Baraga	623	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	11[b]	0[b]	12[b]	w.	Duluth, S. S. & Atl. Ry.
Bergland	Ontonagon	1,300	3	64.2	.....	92	30	39	10	41	5.34	.....	1.09	0	10	15	4	12	sw.	Frank McMonigal.
Calumet	Houghton	1,246	25	60.7	− 3.7	80	3	44	6	27	3.28	+ 0.47	1.15	0	10	19	8	4	w.	E. S. Grierson.
Chatham	Alger	875	12	.....	.....	88	30	.....	.....	.....	3.01	− 0.77	1.70	0	7	16	3	12	s.	Upper Peninsula Exp. Sta.
Deer Park	Luce	610	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Sarah E. McGaw.
Eagle Harbor	Keweenaw	622	14	59.5	− 2.2	81	3	41	10	25	2.90	+ 0.26	0.80	0	11	19	0	12	sw.	T. J. Bennetts.
Escanaba	Delta	612	40	64.3	− 2.2	88	1	44	21	25	4.87	+ 1.53	1.77	0	15	12	11	8	s.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	12	64.7	+ 0.3	92	30	40	10†	40	3.35	+ 0.58	1.25	0	6	10	4	17	sw.	W. B. Hatfield.
Grand Marais	Alger	610	12	59.8	− 1.6	86	3	43	10†	30	4.41	+ 1.46	1.52	0	10	26	1	4	w.	Mrs. Lena Truedell.
Houghton	Houghton	668	12	62.1	− 3.6	84	3	46	10	27	3.23	+ 0.13	1.02	0	12	8	15	8	w.	U. S. Weather Bureau.
Humboldt	Marquette	1,536	16	63.6	+ 1.2	87	30†	33	21	44	3.65	+ 0.71	0.88	0	9	19	1	11	w.	Duluth, S. S. & Atl. Ry.
Iron Mountain	Dickinson	1,111	12	66.6[a]	+ 0.3	90[a]	3	39[a]	21	40[a]	4.12	− 0.33	0.85	0	15	10[a]	18[a]	2[a]	nw.	Chapin Mining Co.
Iron River	Iron	1,504	16	63.9	+ 0.5	90	30	37	21†	40	5.10	− 0.44	0.85	0	14	14	14	3	sw.	Victor D. Laing.
Ironwood	Gogebic	1,520	10	64.8	− 0.8	93	30	44	11	31	5.49	+ 0.57	1.17	0	9	20	8	3	w.	J. V. Brennan.
Ishpeming	Marquette	1,536	13	62.8[a]	− 1.7	87[a]	3	40[a]	27	34[a]	3.05	− 1.27	0.94	0	13[a]	9	20	2	w.	Cleveland Cliffs Iron Co.
Isle Royale	Keweenaw	610	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Malone.
Mackinac Island	Mackinac	831	12	63.8	− 1.1	84	3	43	11	26	2.37	− 1.75	0.90	0	11	6	14	11	w.	Mackinac I. State Park Com.
Maple Ridge	Delta	.....	7	64.0	.....	88	3	39	21	38	3.58	.....	1.05	0	11	16	11	4	s.	Herman Johnson.
Marquette	Marquette	734	42	63.1	− 1.8	91	3	46	6	30	3.70	+ 0.60	0.99	0	16	15	7	9	nw.	U. S. Weather Bureau.
Menominee	Menominee	581	14	67.2	− 0.8	89	1†	47	21	27	5.12	+ 1.33	1.41	0	11	21	6	4	sw.	Chief of Fire Department.
Munising	Alger	631	16	61.4	− 0.9	91	3	37	10	39	5.99	+ 3.14	2.26	0	15	15	10	6	n.	Albert Oas.
Newberry	Luce	773	11	63.0	− 0.7	89	3	40	11	36	4.17	+ 1.45	1.34	0	11	12	15	4	n.	John Brown.
Ontonagon	Ontonagon	1,147	12	67.5[c]	.....	97[c]	30	51[c]	16	30[c]	.....	.....	.....	.....	.....	12[c]	0[c]	16[c]	n w.	T. A. Green.
Powers	Menominee	868	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chicago & North Western Ry
St. Ignace	Mackinac	593	23	62.2	− 2.5	88	5	35	23†	44	4.50	+ 1.34	1.50	0	4	24	5	2	w.	Duluth, S. S. & Atl. Ry.
Sault Ste Marie	Chippewa	614	25	61.4	− 0.5	86	3	44	11	31	5.04	+ 2.29	1.88	0	11	9	14	8	w.	U. S. Weather Bureau.
Seney	Schoolcraft	730	1	63.7	.....	92	28	30	25	50	5.28	.....	1.93	0	6	20	8	3	nw.	Western Land Securities Co.
Thomaston	Gogebic	1,347	16	63.4[j]	− 1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3[j]	14[j]	4[j]	w.	Duluth, S. S. & Atl. Ry.
Victoria	Ontonagon	1,263	3	63.5	.....	93	30	40	12†	35	2.67	.....	1.00	0	7	22	6	3	nw.	R. S. Schultz, jr.
Watersmeet	Gogebic	.....	4	63.8	.....	90	30	35	10†	40	5.91	.....	0.92	0	15	7	14	10	w.	B. N. Grant.
Whitefish Point	Chippewa	610	13	56.8	− 2.0	82	3	42	25	31	5.10	+ 2.02	1.20	0	12	14	6	11	nw.	Robert Carlson.
Michigan—Lower Peninsula.																				
Adrian	Lenawee	770	35	74.9	+ 0.6	103	29	45	7†	42	2.42	− 1.13	0.95	0	7	10	18	3	sw.	H. E. Hubbard.
Allegan	Allegan	698	22	74.2	+ 2.4	100	30	45	7	39	3.54	+ 0.76	1.16	0	8	2	23	6	w.	Pere Marquette R. R.
Alma	Gratiot	750	26	69.5	− 0.4	93	3†	43	25	36	2.55	− 0.41	1.10	0	7	15	11	5	nw.	P. M. Smith.
Alpena	Alpena	609	40	65.4	− 0.4	95	3	44	25	31	1.89	− 1.17	0.81	0	9	7	21	3	nw.	U. S. Weather Bureau.
Ann Arbor	Washtenaw	930	33	71.9	+ 0.2	94	4	47	7	32	1.26	− 1.95	0.50	0	8	10	11	10	nw.	University of Michigan.

TABLE 1.—*Climatological data for July, 1913. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Michigan—Lower Peninsula—Continued.																				
Arbela	Tuscola	728	17	71.2[a]	+ 0.2	97	31	38[b]	19	44[b]	3.15	+ 0.15	1.35	0	8	9	16	6	w.	Wm. Atkin.
Armada	Macomb		24	68.5	− 1.3	90	4	45	11†	31	2.25	− 0.57	0.61	0	8	8	22	1	nw.	R. O. Gould.
Battle Creek	Calhoun	822	29	73.2	− 0.1	96	27†	47	25	34	3.25	− 0.16	1.28	0	9	19	3	9	sw.	Elmer E. Sager.
Bay City	Bay	593	17	71.9	+ 0.6	99	2	47	7	45	2.84	− 0.74	1.10	0	6	17	4	10	sw.	Pere Marquette R. R.
Benzonia	Benzie	832	16	65.8	− 2.1	90	30	44	21	40	4.30	+ 1.50	1.10	0	12	12	19	0	sw.	Wallace Nutting.
Big Rapids	Mecosta	906	17	71.1	+ 2.6	95	3	45	11†	36	3.34	− 0.34	1.38	0	7	5	18	8	w.	Supt. Waterworks.
Blissfield	Lenawee	687	1																	Harry Watson.
Bloomingdale	Van Buren		9	72.2		99	30	45	7	35	2.58		1.56	0	7	23	3	5	sw.	John M. Haven.
Cadillac	Wexford	1,293	4	68.3		90	3	44	21	33	6.06		1.45	0	8	19	11	1	n.	Cadillac Water & Light Co.
Cassopolis	Cass	903	12			98[c]	30									22[c]	3[c]	1[c]	w.	Michigan Central R. R.
Charlevoix	Charlevoix	610	35	67.0	− 0.6	91	3	42	14	35	2.26	− 0.23	0.80	0	4	26	3	2	sw.	Pere Marquette R. R.
Charlotte	Eaton		9	71.9		94	5†	43	8	36	2.03		1.16	0	3	20	3	8	nw.	City of Charlotte.
Cheboygan	Cheboygan	611	23	66.2	− 0.6	91	26	42	11†	40	3.10	+ 0.10	0.85	0	6	13	18	0	w.	E. A. Bouchard.
Clinton	Lenawee	830	23	73.9	+ 1.3	99	29†	45	7†	37	3.15	+ 0.02	1.27	0	6	21	9	1	nw.	David Woodward.
Coldwater	Branch	984	16	74.3	+ 2.3	95	3†	46	25	34	2.47	+ 1.81	0.45	0	12	21	9	1	s.	L. S. & M. S. R. R.
Croton	Newaygo	685	5	71.1		94	30	45	7†	34	2.16		0.91	0	9	8	20	3	w.	Gr. Rap. Musk. Power Co.
Detroit	Wayne	730	42	72.9	+ 0.9	95	4	50	7	27	4.48	+ 1.00	1.85	0	12	12	17	2	n.	U. S. Weather Bureau.
Durand	Shiawassee	799	5																	Chief Train Dispatcher.
East Tawas	Iosco	590	16	67.6	− 0.5	93	1	43	25	32	2.08	− 1.41	0.80	0	7	19	12	0	sw.	Detroit & Mackinaw Ry.
Eloise	Wayne	640	16	73.0	+ 0.2	97	4	48	11†	34	3.64	+ 0.32	2.16	0	10	12	17	2	e.	John Gilmore.
Five Channels	Iosco		0	67.7		95	3	39	11	42	1.72		0.27	0	11	19	9	3	nw.	Au Sable Electric Co.
Flint	Genesee	730	24	69.8	− 0.1	92	4	47	25	33	4.63	+ 1.87	1.75	0	6	14	12	5	w.	William L. Fisher.
Frankfort	Benzie	589	9	64.1		82	30	52	25	18	3.35		0.70	0	9	17	0	14	s.	Geo. Morency.
Ganges	Allegan	665	4	71.0		100	30	48	21	41	1.59		0.44	0	8	23	3	5	sw.	H. H. Hutchins.
Gaylord	Otsego	1,367	13	66.6	0.0	93	3	42	11	36	2.91	− 0.49	0.90	0	8	18	0	13	se.	Michigan Central R. R.
Gladwin	Gladwin	794	17	69.9[b]	+ 0.8	97[b]	3	41[b]	14	45[b]	3.80	+ 0.90	1.30	0	4	24[b]	5[b]	0[b]	sw.	Geo. R. Smith.
Grand Haven	Ottawa	628	42	69.1	− 0.6	94	30	49	25	34	1.57	− 1.01	0.60	0	9	18	10	3	nw.	U. S. Weather Bureau.
Grand Rapids	Kent	707	24	72.8	+ 0.2	96	30	50	25	30	1.96	− 0.67	0.54	0	9	13	14	4	w.	Do.
Grape	Monroe	625	23	73.2	+ 1.0	95	29	47	7†	33	3.36	+ 1.01	1.76	0	12	19	11	1		Joseph W. Morris.
Grass Lake	Jackson	989	7	72.9		96	4†	45	7	36	2.77		1.22	0	6	22	4	5	nw.	Menzo Conklin.
Grayling	Crawford	1,147	23			90	4†				2.23	− 0.85	0.63	0	5	19	2	10	w.	S. N. Insley.
Greenville	Montcalm	802	1																	Michigan Pickle Co.
Harbor Beach	Huron	635	25	67.8	− 0.1	95	27	43	11	36	1.58	− 0.70	0.80	0	4	22	8	1	se.	Pere Marquette R. R.
Harrison	Clare	1,159	20	68.8	+ 0.3	95	3†	41	25	45	2.68	+ 0.11	0.83	0	7	19[a]	3[a]	8[a]	sw.	Do.
Harrisville	Alcona	616	29	66.6	− 0.2	96	3	44	11†	37	1.77	− 1.19	0.54	0	9	10	16	5	sw.	D. W. Michell.
Hart	Oceana	698	21	73.3	+ 3.9	98	30	51	8	36	3.62	+ 1.16	1.00	0	7	22	8	1	sw.	Pere Marquette R. R.
Hayes	Huron	620	23	69.6	+ 0.9	96	27	42	25	48	2.34	− 0.33	0.73	0	8	10	18	3	sw.	C. F. Leipprandt.
Highland	Oakland	1,006	21								4.06	+ 1.06	2.06	0	8					A. D. De Garmo.
Hillsdale	Hillsdale	1,150	16	73.3	+ 1.9	98	31	44	7	34	1.55	− 2.32	0.60	0	6	18	9	4	sw.	C. L. Herron.
Holland	Ottawa	610	7	72.4		102	30	46	21	40	1.63		0.60	0	8	15	16	0	nw.	City of Holland.
Houghton Lake	Roscommon		0	66.0		93	3	43	20	33	3.61		1.03	0	7	13	6	12	nw.	James H. Ostrander.
Howell	Livingston	924	21	72.7	+ 2.3	94	27	46	7	32	1.81	− 1.02	0.90	0	6	11[b]	16[b]	2[b]	sw.	Frank Sharp.
Ivan	Kalkaska		24	66.6	− 1.4	91	3	40	14	35	2.58	− 0.20	0.74	0	11	6	25	0	nw.	O. L. Giddings.
Jackson	Jackson	927	16	73.4	− 0.1	99	31	45	7†	36	3.30	− 0.03	1.13	0	10	18	11	2	w.	City of Jackson.
Jeddo	St. Clair	667	24	69.9	+ 0.4	92	29	45	11	38	3.30	+ 0.45	1.32	0	8	11	18	2	sw.	William Bice.
Johannesburg	Otsego		0																	Axel Becker.
Kalamazoo	Kalamazoo	955	37	72.8	+ 0.5	98	30	45	25	37	1.95	− 1.56	1.00	0	3	20	8	3	w.	Kalamazoo Asylum.
Lansing (Agr. Col.)	Ingham	863	49	70.8	− 0.1	94	3	44	7	34	2.85	− 0.37	1.28	0	10	11	15	5	nw.	U. S. Weather Bureau.
Lansing (capitol)	....do	881	26	72.4	+ 1.3	96	3	47	7†	34	3.22	− 0.02	1.63	0	9	12	6	13	sw.	State Board of Health.
Lapeer	Lapeer	827	14	71.5	+ 0.2	96	28	40	25	42	2.56	− 0.16	1.35	0	5	4	25	2	sw.	Michigan Home.
Ludington	Mason	637	15	66.2	− 1.6	90	30	47	11	30	4.32	+ 1.87	1.23	0	14	13	13	5	s.	U. S. Weather Bureau.
Luther	Lake	1,028	3	67.6		96	29†	36	21†	39	3.43		1.10	0	9	14	13	4	nw.	John W. Nichoson.
Mackinaw	Cheboygan	592	22					44	11		2.88	− 0.33	1.00	0	5	15	14	2	s.	G. R. & I. Ry.
Mancelona	Antrim	1,121	17	65.8	− 1.6	91	30	39	21†	43	3.65	+ 1.02	1.35	0	6	19	0	12	nw.	Do.
Manistee	Manistee	600	16	66.6[c]	− 0.4	88[c]	3	48[c]	24	28[c]	3.92	+ 0.90	0.95	0	9	20[c]	0[c]	8[c]	s.	Postmaster.
Marshall	Calhoun	896	1	73.2[c]		97[c]	31	48[c]	7	32[c]										E. B. Stuart.
Midland	Midland	604	14																	Pere Marquette Railroad.
Marenci	Lanawee	811	6	73.4		97	29	45	7	36	2.42		1.04	0	6	15	13	3	nw.	George J. Tripp.
Mount Clemens	Macomb	615	13	72:1	− 0.2	96	4	46	11†	35	4.90	+ 1.49	1.60	0	5	21	2	8	ne.	Waterworks.
Mount Pleasant	Isabella	826	14	72.1	+ 0.8	99	1†	45	11	40	2.79	+ 0.15	1.30	0	5	21[a]	4[a]	5[a]	sw.	Pere Marquette Railroad.
Muskegon	Muskegon	587	17	69.5	− 0.7	99	30	48	25†	40	1.13	− 2.24	0.90	0	4	25	2	4	w.	G. R. & I. Ry.
Old Mission	Grand Traverse	858	19	66.3[b]	− 2.6	93[b]	30	46[b]	11	36[b]	2.13	− 0.45	0.61	0	10	11[a]	14[a]	5[a]	sw.	E. O.Ladd.
Olivet	Eaton	934	23	72.0	+ 1.4	96	27†	45	25	39	2.13	− 1.83	0.60	0	9	28	1	2	n.	G. A. Knapp.
Omer	Arenac	616	14	68.0	+ 1.0	98	3†	39	10†	45	3.90	+ 1.35	1.70	0	4	17	13	1	w.	Detroit & Mackinaw Ry.
Onaway	Presque Isle	826	10	67.0	+ 1.0	93	1†	41	11	35				0		19	0	12	s.	Do.
Owosso	Shiawassee	731	16	72.6	+ 0.1	97	4	43	25	46	2.09	− 2.41	1.10	0	9	3	26	2	nw.	Owosso Sugar Co.
Petoskey	Emmet	660	23	69.2	+ 2.5	90	4	40	6	28	1.90	− 0.64	0.60	0	4	18	0	13	sw.	G. R. & I. Ry.
Plymouth	Wayne	725	16	73.8	+ 2.0	97	1†	49	7†	41	2.66	− 0.79	1.70	0	3	25	3	3	s.	Pere Marquette R. R.
Pontiac	Oakland	935	13	71.2	+ 0.7	93	4	47	7†	28	6.51	+ 3.66	2.68	0	6	18	11	2	nw.	Fred W. Shaw.
Port Austin	Huron	618	16	68.4	− 0.9	95	27†	37	11	40	0.89	− 0.21	0.35	0	7	18	9	4	n.	Pere Marquette R. R.
Port Huron	St. Clair	639	38	69.0	0.0	91	29	48	11	29	4.30	+ 1.56	2.10	0	10	11	18	2	ne.	U. S. Weather Bureau.
Reed City	Osceola	1,033	16	68.8	− 0.1	93	3	43	25	35	3.41	− 0.34	0.93	0	10	17	0	14	sw.	Osceola Light & Power Co.
Roscommon	Roscommon	1,141	12	65.4[a]	− 0.6	93[a]	3	31[a]	25	45[a]	3.31	+ 1.01	0.94	0	9	11[a]	19[a]	0[a]	w.	Marcus Schaaf.
Saginaw, east side	Saginaw	601	11																	Postmaster.
Saginaw, west side	....do	641	18	70.2	− 0.8	94	3	46	7	31	4.75	+ 1.05	2.34	0	8	11	15	5	sw.	U. S. Weather Bureau.
St. James	Charlevoix	681	7	64.2		86	3	47	6†	27	2.36		0.95	0	5	18	7	6	sw.	James Malone.
St. Joseph	Berrien	593	26	72.6	− 0.1	101	30	52	11	35	3.32	+ 0.77	1.60	0	6	13	11	7	sw.	City of St. Joseph.
Sandusky	Sanilac	790	4	67.4		92	3†	39	11	36	3.76		1.98	0	7	11	17	3	se.	Pere Marquette R. R.
Saranac	Ionia	639	18	72.5	+ 0.8	100	3	42	25	40	2.85	− 0.08	1.46	0	7	18	3	10	w.	John Wallington.
South Haven	Van Buren	585	17								3.05	− 0.06	0.80	0	7				sw.	Capt. James S. Donahue.
Thornville	Lapeer	975	36	71.2	− 0.8	91	16	44	25	35	2.36	− 0.86	0.80	0	7	12	17	2	sw.	J. S. Caulkins.
Traverse City	Grand Traverse	588	16	68.0	− 1.0	96	31	43	14	35	1.90	− 1.48	1.60	0	2	16	4	11	nw.	G. R. & I. Ry.
Vassar	Tuscola	641	12	71.8[d]	+ 0.9	97[d]	1	44[d]	11	38[d]	4.42	+ 1.50	1.26	0	6	7[d]	14[d]	6[d]		Pere Marquette R. R.
Wasepi	St. Joseph	842	16	72.5	+ 1.4	94	3†	46	24	35	2.87	− 1.28	1.05	0	8	27	0	4	sw.	Charles A. Palmer.
Webber Dam	Ionia		0	73.2[b]		96[b]	30	51[i]	11	33[i]						10[g]	14[g]	0[g]		Au Sable Electric Co.
West Branch	Ogemaw	973	8																	Michigan Central R. R.
Ypsilanti	Washtenaw	736	28	71.9	+ 1.1	96	4	47	7	37	3.77	+ 0.39	1.80	0	11				nw.	Orin J. Bemiss.
Ohio.																				
Akron	Summit	1,081	26	72.1[a]	− 0.2	95[a]	1	47[a]	12	38[a]	5.64	+ 1.70	1.49	0	16	16	7	8	sw.	Prof. C. R. Olin.
Antwerp	Paulding	733	1	75.4		99	31	47	7	43	4.47		1.40	0	7	27	0	4	sw.	North G. Osborn.
Benton Ridge	Hancock	800	20	74.8	+ 0.7	96	1	47	7	34	6.05	+ 2.23	1.54	0	9	19	12	0	sw.	J. W. Powell.
Bowling Green	Wood	670	32	73.8	+ 0.9	96	29	45	7	33	3.45	− 0.97	1.00	0	9	19	12	0	sw.	G. C. Houskeeper.
Bucyrus	Crawford	1,000	19	74.2	+ 0.7	95	4†	46	7	37	5.78	+ 1.98	2.40	0	11	18	4	9	sw.	James R. Hopley.
Cleveland (1)	Cuyahoga	762	42	71.8	− 0.7	90	3	50	11	25	4.85	+ 1.30	2.64	0	12	7	20	4	se.	U. S. Weather Bureau.
Cleveland (2)	....do	754	16	73.0	+ 0.1	94	4	50	11	29	7.71	+ 4.05	3.10	0	12	17	7	7	w.	Rev. F. L. Odenbach, S. J.
Conneaut	Ashtabula	675	3	70.8		93	4	44	11	32	3.97		0.83	0	11	16	4	11	sw.	E. L. Ransom.

TABLE 1.—*Climatological data for July, 1913. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Ohio—Continued.																				
Findlay	Hancock	776	24	75.0	+ 0.8	97	29	46	7	38	5.68	+ 1.84	1.45	0	13	20	8	3	sw.	Dr. E. A. Moser.
Fremont	Sandusky	628	11	74.4	+ 0.5	94	1†	45	7	32	4.79	+ 0.77	1.70	0	15	28	3	0	sw.	E. Stanley Thomas.
Hedges	Paulding	725	19	75.8[a]	+ 2.7	97	3	49[a]	11	39[a]	3.38	+ 0.37	1.30	0	7	27	4	0	nw.	Charles Stutzman.
Hillhouse	Lake	997	20	70.3	− 0.2	92	4	41	11	36	4.08	− 0.20	1.25	0	10	15	16	0	sw.	J. W. Doncaster.
Hiram	Portage	1,260	33	71.8	+ 0.7	94	1	48	11	30	3.78	+ 0.05	1.13	0	11	14	17	0	nw.	Prof. G. H. Colton.
Hudson	Summit	1,123	52	73.2	+ 0.9	101	31	46	11	41	4.35	+ 0.18	0.72	0	16	19	12	0	sw.	Dr. W. I. Chamberlain.
Lima	Allen	875	14	75.1	+ 2.0	96	1†	47	7	35	4.74	+ 1.67	2.35	0	7	19	5	7	sw.	Miss Ollie DeLong.
Medina	Medina	944	25	72.4	0.0	97	1	42	11	41	4.73	+ 0.36	0.68	0	15	18	10	3	n.	F. W. Clark.
Montpelier	Williams	880	21	75.3	+ 2.9	97	29†	47	7†	34	3.95	− 0.02	1.80	0	8	21	7	3	w.	G. L. Laser.
Napoleon	Henry	680	26	74.8	+ 1.7	98	17	48	6†	39	2.12	− 1.28	0.75	0	7	22	9	0	w.	A. C. Senter.
New Bremen	Auglaize	1,038	20	75.1	+ 0.9	96	30†	49	7	34	3.42	+ 0.21	0.65	0	10	12	19	0	nw.	Miss Lillian Grothaus.
North Royalton	Cuyahoga	1,000	20	71.6	− 0.6	93	3†	47	7†	33	6.22	+ 1.82	1.35	0	13	14	15	2	sw.	W. S. Edgerton.
Norwalk	Huron	719	27	74.3	+ 1.4	97	1†	46	11	39	3.64	− 0.83	1.10	0	10	10	14	7	w.	Giles R. Gregory.
Oberlin	Lorain	855	38	72.7	+ 0.4	98	4	41	14	41	3.28	− 0.45	1.09	0	15	11	16	4	sw.	Prof. F. F. Jewett.
Ottawa	Putnam	720	20	74.5	+ 0.7	95	30†	47	7	34	4.17	+ 0.42	1.80	0	10	12	18	1	nw.	Prof. J. T. Maidlow.
Sandusky	Erie	629	36	73.8	+ 0.2	95	4	54	11	29	2.19	− 1.60	0.84	0	14	8	18	5	sw.	U. S. Weather Bureau.
Tiffin	Seneca	775	31	73.8	+ 0.3	94	4†	52	7†	26	5.41	+ 1.54	0.98	0	13	20	11	0	sw.	Prof. T. H. Sonnedecker.
Toledo	Lucas	769	42	74.2	+ 0.5	94	4	52	7	25	3.38	+ 0.14	1.18	0	14	24	6	1	sw.	U. S. Weather Bureau.
Upper Sandusky	Wyandot	854	30	74.5	+ 0.8	94	1†	48	7	33	8.97	+ 5.48	3.08	0	11	11	19	1	sw.	Robert E. Tracht.
Vickery	Sandusky	588	20	73.8	+ 0.6	96	29	46	11	35	3.05	− 1.13	1.15	0	13	10	20	1	ne.	John W. Barr.
Wapakoneta	Auglaize	898	1	76.2	.....	96	1†	50	7†	34	3.95	.....	1.49	0	11	10	21	0	nw.	Dr. William Kayser.
Wauseon	Fulton	780	41	73.4	+ 0.6	98	5	44	7	37	3.87	− 0.07	1.76	0	13	16	11	4	s.	Thomas Mikesell.
Wickliffe	Lake	740	1	.....	.....	.....	.....	.....	.....	.....	3.07	.....	1.20	0	10	22	5	4	sw.	C. M. Richardson.
Pennsylvania.																				
Erie	Erie	658	41	70.4	− 1.4	87	4	51	11	22	1.36	− 1.85	0.36	0	12	11	17	3	w.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	22	71.1	+ 1.2	95	4	46	11	34	2.35	− 2.13	0.64	0	6	18	13	0	sw.	A. E. Cooley.
Angelica	Allegany	1,340	30	65.6	− 2.0	92	1†	38	22	41	1.90	− 2.30	0.49	0	11	5	15	11	w.	C. P. Arnold.
Appleton	Niagara	270	22	69.4	− 0.3	95	27	47	11	42	0.84	− 3.12	0.24	0	8	20	10	1	nw.	H. A. Van Wagoner.
Auburn	Cayuga	715	44	70.1	− 0.4	94	1†	47	11	35	2.30	− 1.49	0.93	0	6	21	10	0	nw.	A. H. Underwood.
Avon	Livingston	585	18	71.5	+ 0.6	95	4	49	11†	36	2.32	− 1.45	0.90	0	6	20	8	3	.....	W. G. Markham.
Brockport	Monroe	537	17	70.0	− 1.2	94	4†	46	11	36	1.60	− 2.72	0.39	0	7	20	11	0	sw.	C. O. Beaman.
Buffalo	Erie	767	62	69.2	− 1.0	93	31	52	7	25	1.03	− 2.37	0.38	0	10	14	12	5	sw.	U. S. Weather Bureau.
Canisius College	....do	.....	0	68.8	.....	94	31	47	11	34	2.64	.....	1.04	0	7	16	13	2	.....	Do.
Canton	St. Lawrence	448	19	68.2	− 0.7	95	4	47	8	38	2.13	− 1.10	0.46	0	15	8	12	11	sw.	Do.
Cape Vincent	Jefferson	246	8	69.6	.....	89	4	44	12	37	3.11	.....	1.36	0	10	15	13	3	w.	J. H. Grapotte.
Chazy	Clinton	151	13	72.4	+ 3.6	97	1†	47	8	37	1.78	− 2.28	0.95	0	4	19	10	2	n.	W. R. North.
Chestnut Lawn	Wyoming	1,090	1	69.6	.....	95	31	44	11	40	1.26	.....	0.47	0	13	20	10	1	w.	Charles Peterson.
Dannemora	Clinton	1,490	8	70.0	.....	94	4	50	7†	30	2.34	.....	0.50	0	9	10	11	10	w.	Dr. W. N. Thayer.
Elba	Genesee	500	14	68.3	− 1.3	92	4	44	11	39	1.14	− 3.70	0.36	0	4	23	4	4	sw.	Joseph S. Willford.
Fayetteville	Onondaga	530	12	73.1	+ 1.5	94	1†	50	11†	36	0.74	− 3.23	0.50	0	5	20	10	1	w.	Dana H. Wells.
Gabriels	Franklin	1,729	11	64.2	.....	92	4	37	8†	41	4.06	.....	2.25	T.	14	16	7	8	w.	Gabriels Sanitarium.
Geneva	Ontario	550	0	72.0	.....	95	1†	50	12	35	2.09	.....	0.70	0	8	.....	.....	.....	.....	Agr. Exp. Station.
Harkness	Clinton	622	11	69.4	+ 0.4	96	4	49	8†	36	3.78	+ 0.12	1.82	0	12	27	2	2	w.	J. W. Harkness.
Hemlock Lake	Livingston	900	15	70.5	− 0.4	91	4	52	11†	32	1.90	− 2.14	0.75	0	9	22	7	2	s.	B. P. McGrady.
Hunt	....do	1,321	14	69.4	− 0.7	96	4	43	11†	38	1.26	− 3.30	0.30	0	8	18	12	1	nw.	W. S. Barager.
Ithaca	Tompkins	928	35	70.4	− 0.2	96	1	48	11	36	1.59	− 2.16	0.60	0	12	16	9	6	nw.	U. S. Weather Bureau.
Keene Valley	Essex	1,000	15	67.8	+ 0.8	101	4	38	12	45	3.43	− 0.48	0.96	0	16	14	13	4	s.	E. R. Wells.
King Ferry	Cayuga	.....	13	.....	.....	.....	.....	.....	.....	.....	0.91	− 3.18	0.24	0	4	21	6	4	nw.	L. A. Goodyear.
Lake George	Warren	350	16	68.9	− 0.9	98	1	42	12	40	1.81	− 2.50	0.45	0	8	13	17	1	s.	Charles Forsell.
Lake Placid Club	Essex	1,864	5	57.5	.....	88	4	33	12	32	3.75	.....	0.53	0	11	13	17	1	sw.	J. O. Howard.
Lauterbrunnen	Wyoming	1,260	1	69.2	.....	94	31	43	11	40	1.17	.....	0.36	0	16	16	11	4	nw.	H. Van Hoevenberg.
Lockport	Niagara	520	26	69.8	− 0.6	94	31	50	11	34	1.44	− 2.38	0.44	0	5	20	9	2	sw.	R. N. Clark.
Lowville	Lewis	900	46	69.1	+ 1.6	93	4	42	12†	39	2.61	− 1.10	1.20	0	10	6	25	0	w.	Prof. W. F. H. Breeze.
Moira	Franklin	200	13	68.6	− 0.4	99	4	47	8	44	2.81	− 1.57	1.07	0	9	12	16	3	w.	C. E. McBride.
Nehasane	Hamilton	1,750	5	63.0	.....	93	4	35	12	45	4.48	.....	1.01	0	16	13	17	1	w.	L. W. Brown.
North Lake	Herkimer	1,822	12	64.8	.....	92	4	38	16	40	2.99	.....	1.15	0	8	23	5	3	w.	J. F. Redmond.
Ogdensburg	St. Lawrence	175	29	70.8	+ 1.2	93	1	48	8	34	2.40	− 0.80	0.70	0	7	11	20	0	s.	State Hospital.
Old Forge	Herkimer	1,733	5	63.8	.....	90	1†	34	8	42	2.71	.....	1.10	0	13	18	8	5	w.	Mrs. S. W. Nelson.
Oswego	Oswego	335	43	68.8	− 0.8	95	4	51	12	32	2.33	− 0.90	1.02	0	11	15	10	6	nw.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. J. Winke.
Palermo	Oswego	460	54	.....	.....	.....	.....	.....	.....	.....	1.58	− 1.78	0.62	0	8	19	6	6	w.	Wm. A. Bartlett.
Perry City	Schuyler	1,038	33	67.7	− 1.1	96	4	39	12	45	1.07	− 3.16	0.41	0	10	16	9	6	nw.	W. H. Jeffers.
Philadelphia	Jefferson	485	7	70.2	.....	96	4	45	11	37	2.86	.....	0.79	0	9	12	19	0	w.	E. D. Babcock.
Potsdam	St. Lawrence	300	37	71.0	+ 2.7	95	2†	47	9	33	3.32	− 1.02	1.66	0	7	.....	.....	.....	.....	A. E. Sutherland.
Ranger School	....do	1,750	0	65.0	.....	94	1†	39	12	39	2.72	.....	0.61	0	15	14	12	5	sw.	Prof. P. T. Coolidge.
Raquette Lake	Hamilton	1,776	5	64.0	.....	92	4	40	12	41	3.98	.....	1.38	0	13	16	11	4	sw.	R. J. Dunning.
Rochester	Monroe	523	84	71.0	+ 0.6	95	4	50	11	29	2.08	− 1.01	0.76	0	10	16	11	4	w.	U. S. Weather Bureau.
Romulus	Seneca	719	21	71.4	− 0.2	94	1†	50	10†	33	0.67	− 2.87	0.36	0	4	19	6	6	nw.	John H. Coryell.
Shortsville	Ontario	740	14	70.1	− 0.1	93	4	49	11	32	1.29	− 2.91	0.62	0	6	17	13	1	nw.	C. H. Latting.
Skaneateles	Onondaga	.....	18	.....	.....	.....	.....	.....	.....	.....	2.39	− 1.68	0.85	0	11	.....	.....	.....	.....	John Durkan.
Syracuse	....do	597	11	70.4	− 0.4	93	1†	52	11	31	0.95	− 2.73	0.77	0	5	17	9	5	nw.	U. S. Weather Bureau.
Tupper Lake	Franklin	1,522	13	64.5	− 0.2	88	1	45	8†	32	4.35	− 0.60	1.20	0	14	16	12	3	w.	Rev. A. W. Maddox.
Volusia	Chautauqua	1,167	14	68.0	− 0.3	90	4	44	11	30	4.08	+ 0.11	1.18	0	11	15	14	2	s.	Benjamin Breads.
Wanakena	St. Lawrence	1,600	3	67.2	.....	93	1†	35	12	44	2.88	.....	0.60	0	15	14	11	6	sw.	Prof. P. T. Coolidge.
Watertown	Jefferson	540	21	69.8	+ 0.2	94	4	51	12	31	2.71	− 0.94	1.02	0	10	18	12	1	sw.	H. P. Dunlap.
Wedgwood	Schuyler	1,430	24	70.1	+ 0.2	96	1	46	11	33	2.87	− 1.08	0.65	0	15	20	10	1	nw.	O. F. Corwin.
Westfield	Chautauqua	837	17	69.4	− 0.9	91	1	47	11	29	5.03	+ 0.78	1.70	0	10	8	16	7	.....	John R. Rogers.
York	Livingston	760	1	69.8	.....	94	31	48	12	40	2.09	.....	0.87	0	7	11	8	12	nw.	M. N. Stewart.
Vermont.																				
Burlington	Chittenden	404	5	68.5	+ 0.3	94	4	46	12	34	2.83	− 0.95	1.05	0	14	5	13	13	s.	U. S. Weather Bureau.
Cornwall	Addison	517	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	C. H. Lane.
Enosburg Falls	Franklin	601	21	68.4	+ 0.8	93	1	45	8	41	5.59	+ 0.19	1.84	0	20	14	12	5	nw.	L. H. Pomeroy.
Hyde Park	Lamoille	376	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	A. V. Wiswell.
Northfield	Washington	876	26	65.3	− 1.3	95	1	39	12	42	3.37	− 0.33	1.41	0	13	5	17	9	s.	U. S. Weather Bureau.
Wells	Rutland	750	20	68.4	− 0.6	90	4†	45	12	35	2.84	− 1.58	0.71	0	9	12	15	4	s.	E. R. Pember.

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 4.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																															
Cloquet	L. Superior.			.24	.43	1.90		T.	.18			1.02	.24	.29		.26	.52			.23			.19		T.		.45	.23	T.	.13		.62	6.93
Duluth	do.		.17	.02	1.87	.46		T.	.32			1.09	.23	.05		.15	.52			.06			.03				.46		.08		.01	.66	6.18
Floodwood	do.																															
Grand Marais	do.					1.48		.48				1.16					.12															4.18
Stephens Mine	do.					.90			.35			.70	.40			34	1.20														.35	4.24
Two Harbors	do.				.10	.60						.60	.50	T.			1.24	T.					.07				.10	T.		T.	.15	3.36
Virginia	do.				.12	.99			.25			.85	.41	.06		1.49	2.40			.07			.12				.14	.09			.19	7.18
Wisconsin.																															
Appleton	Fox.		1.04		.61	.20			.14				1.94			.48				T.				60			.40		.92		.69	7.02
Ashland	L. Superior.			.31	.01	1.35			.73	T.		.27	.14	.21		.09	.74			.09			.04				.94		.22		.67	5.81
Bayfield	do.			.12	.03	1.38		.02	.37			.18	.31	.13	T.	T.	.54			.04			.23	T.	T.		.58	.38	T.	.11		.33	4.75
Cecil	Fox.	.43	T.	.80	1.20	.87		.08	.38	T.		T.	1.02		T.		.32			.42				T.			T.	.26		.38		.25	6.41
Cornucopia	L. Superior.			.14	.11	2.01			.43			.18	.07	.17	T.	.02	.47			.16			.15	T.			.23	.35	T.	.09		.30	4.88
Crandon	Fox.	.06	T.		.89	.84			.53				1.09	.07				T.		.13			.04	.17			.28	1.76	.23			.07	6.16
Florence	Menomonee.	T.	.18	.10	.57	.47			.22		*	.84	.15			.26						59					.18	.08		.22		.57	4.43
Fond du Lac	Fox.		.08		.14	.42			.33			.03	.52	.02	.67		.07		T.	.41				.75						.52		1.07	5.03
Grand River Locks	do.					T.			.27			.07	1.35		.32		.18			.18				.75						.86		.30	4.28
Green Bay	L. Michigan.	.32			.06	.52		.06	.58			1.14	.05		T.		.27	T.		.05			.24	.10				.52		.27		.73	4.91
High Falls	do.	.24		.06	T.	.22		T.	.49	.01		T.	1.32	.04			.50	T.		.01					66		.20	1.86		.25		T.	5.86
Iron River	L. Superior.			.68	.19	1.20	.05		.67	T.	.30		.21	.24		.29	.74		T.	.30			.15		T.		1.15	.30		.25	T.	.55	7.27
Kewaunee	L. Michigan.	.09				.89		T.	.55				.71				.78			.06				.57				.65		.16		.65	5.11
Manitowoc	do.	.32		.42	.40				.48				.68		.02		.39			.11				.90			.11	.06		.20		1.30	5.39
Menasha	Fox.	.61			.48				.34			1.71	T.		T.		.66	T.		.23			.73					.10		.60		.72	6.18
Menomonee Falls	L. Michigan.				.74				.38			T.	.98	T.	.24	1.24	.21	T.		.17	T.			.77						.54		.26	5.53
Milwaukee	do.				T.	.03			.35			.49		.12	1.17	.12				.05				.26						.55	.04	.41	3.59
New London	Fox.	1.10			.15	.10			.90				1.60		.10	.10	.30	T.		T.				.45				.17		.75		.50	6.22
Oconto	L. Michigan.	.51			.72	.58			.52				1.65				.60							.28				.55		.21		.50	6.12
Oshkosh	Fox.		.50		.30				.35				1.36		.85		T.			T.				.46						.61		.34	4.77
Pine River	do.	*	.42			.18			.30			.22	.69	T.	.62		.26	T.		.04			*	.80				.05		.81		.08	4.47
Plum Island	L. Michigan.	.47	.14		.22	.27			.12				.85	.05			.34	.04		.36	.19			.74			.70	.56		.09		.18	5.32
Plymouth	do.		.23		.01	.08			.38				.76	T.	.46		.03							.63						.27		.55	3.40
Port Washington	do.								.40					.52	.33	1.05	.18	.05		.05				1.32						.62		.83	5.35
Racine	do.	T.			1.80	.31			.61	.03			.19		1.68	.80	.16	T.	.12		T.			.25						.30		.22	6.47
Ripon	Fox.				.31	.14			.76			.25	.63	.01	.58	.11			.01	.09	.01			.50				.01		.31		.24	3.96
Sheboygan	L. Michigan.		.12			.05			.85				1.03			1.55	.09			T.				.50						.26		.83	5.28
Sturgeon Bay	do.	.68	.04			.43		T.	.34				.90				.68	T.						.26			.39	.67		.11		.25	4.75
Superior ‖	L. Superior			.13	.02	2.00			.25			.11	1.38	.12			.83	.16			.05		.03	.01			.47	.22		.11	.06	.61	6.56
Waupaca	Fox.	.78	.82			.52			.63			.20	1.39		.08		.22			.18			.09	.18				.09		.87		.02	6.07
Illinois.																															
Chicago	L. Michigan.	T.		T.					1.09						1.75	.23	.03		.01	.06				.11							.02	3.30
Evanston	do.								.80					.90	1.20	.50								.20							.08	3.68
Indiana.																															
Auburn ‖	Maumee.	.08				.47	.10		.06						.57	.80									T.			.30		.03		2.41
Berne	do.	.16	.03	.19		.14				.98		.25	.04	.22	.54	.82	1.94						.10	.02			.10			.10	.02	5.65
Fort Wayne	do.	T.			.20	.81			.30				.02		2.12	.02	.04			.02			.04				T.			.02	.06	3.65
Hammond	L. Michigan.									1.05				.54	1.90	.08	.10		.06												.42	4.15
Howe ‖	St. Joseph.				.58		.23			.02					.52	1.95			T.					.10			T.		T.		.32	3.72
Notre Dame	do.	T.			.06	T.			.52					.05	1.97		.04		T.	T.			.03				.50		T.		.11	3.28
Whiting	L. Michigan.	.02							.97	.23		.02			2.35	.11		.02	T.	.22											.64	4.58
Michigan—Upper Peninsula.																															
Baraga	L. Superior.																														
Bergland	Ontonagon.			1.09	.13	.86			.39			.96	.13			.43	T.					T.				.43	.66		.26			5.34
Calumet	L. Superior.	T.		.42		.40		T.	.28				1.15	.15			.33					T.	T.	.12			.28			.10	.05	T.	3.28
Chatham	do.					1.70	.05		.05								.01	.03					.47									.70	3.01
Deer Park	do.																															
Eagle Harbor	do.			.10	.10	.30		.10					.80	.10			.10						.60				.20		.10	T.	.40	2.90
Escanaba	L. Michigan.	.17		.02	.18	.39			.12			1.02	.75	.03			.20	T.		.45			.57	.02	T.		.56	.19		T.		.20	4.87
Ewen	Ontonagon.			1.25								T.					.60					T.	.20				.13	.36		.81		T.	3.35
Grand Marais	L. Superior.			.40	.35				T.				1.52				.10						.70	.47	.10			.30		.05	T.	.42	4.41
Houghton	do.			.47		.31	.05		.25			.37	.71	.02			.19			T.			.06				.49			.14	.17	T.	3.23
Humboldt	Escanaba.			.38	.40	.32			T.				.88				.04						.70				.15	.50				.28	3.65
Iron Mountain	Menominee.	.04	.26	.06	.40	.45		T.	.18				.85	.09		.24							.48	.17			.04	.30		.20		.36	4.12
Iron River	do.			.35	.85	.45			.30			T.	.55	.35			.55	.20		.25			.30	.10			.30	.20		.35		T.	5.10
Ironwood	L. Superior.			1.17		1.00			.47				.32	.45			.59							.45	.66			.38				5.49
Ishpeming	Escanaba.			.23		.58	.04		.05				.94	.08			.07	T.		.23			.18	.26			T.	.25		.05		.09	3.05
Isle Royale	L. Superior.																															
Mackinac Island	Lake Huron.	T.	.09	T.	.62	.05							.12	T.			.01	.01		T.	.04		T.	.37	.05			.11				.90	2.37
Maple Ridge	L. Michigan.				.92	.37			.05				1.05				.23			.13			.06	.33			.10	.14				.20	3.58
Marquette	L. Superior.			.32	.53	.18	.04		.03			.25	.63	.01			.03	.02		.03			.99				.18	.02		.02	T.	.42	3.70
Menominee	Menominee.	.07		.04	.82			T.	.33			1.41	.05				.21	T.					.76			1.03		.09				.31	5.12
Munising	L. Superior.			.03	1.56	.45	.02		.09				2.26	.10			.06	.02					.66	.26	.06		.01	.03				.38	5.99
Newberry	Tequamenon				.68	.39			.05				1.34	.07			.05	.04					.25	.57				.04			T.	.69	4.17
Ontonagon	L. Superior.				.64	.57			.40				1.00	.25									.10					.54		.10			
Powers	L. Michigan.																															
St. Ignace	Lake Huron.				1.00							1.00												1.50				T.				1.00	4.50
Sault Ste. Marie	St. Marys.			T.	.15	.11			T.	.33			1.88	.07			.06					.01	.56	.54			T.	.02				1.31	5.04
Seney	Manistique.				1.10	.45							1.93										35					.95				.50	5.28
Thomaston	L. Superior.			1.27					.26				.72	.60			.61															.60	
Victoria	Ontonagon.							.43				1.00	.28	.43			.06						.07				.40						2.67
Watersmeet	do.			.85	.60	.76	.02		.37				.85	.30			.36	.03					.07	.04			.37	.92		.34		.03	5.91
Whitefish Point	L. Superior.				.78	.46				.03			1.20	.16			.28	.06					.59	.63				.22	.10			.59	5.10
Michigan—Lower Peninsula.																															
Adrian	Raisin					.95							.06		.38	.68	T.	.22						.05				.08					2.42
Allegan	Kalamazoo			.10		.21			.14				T.		.09	.61	.74							.49								1.16	3.54
Alma	Saginaw				T.	T.			T.				.15			.75	1.10				.05			.18					.12			.20	2.55
Alpena	Lake Huron		T.		.81	.01							.10	.10			.16	T.		.37				.06	T.			.22				.06	1.89
Ann Arbor	Huron	T.	T.		T.	.32			T.	.03			.03			.04	T.	.21			T.			.05				T.	.50	.08		T.	1.26
Arbela	Saginaw				.96							.11					1.35				.30			.08				.13	.12			.10	3.15
Armada	Clinton	.33			.61	.48							.14					.58			.03							.03	.05				2.25
Battle Creek	Kalamazoo	T.	T.		.18	1.28	.11			T.			.04	T.	.06	.85		.42	T.			T.			.06				.25			3.25
Bay City	Saginaw				1.10								.21				.63							.41	.08							.41	2.84

TABLE 2.—*Daily precipitation for July, 1913. District No. 4*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Michigan—Lower Peninsula—Contd.																																	
Benzonia	Betsey	.06	.09	---	.33	.17	.....	.....	.14	.....	.....	.....	.39	.....	.....	.....	.90	.03	.04	.....	T.	.....	.....	.69	.....	.....	.....	1.10	.....	T.	.....	.36	4.30
Big Rapids	Muskegon	.....	.....	.....	.....	.....	.....	.....	.08	.02	.....	.....	.....	.....	.....	.....	.45	1.38	.....	.....	.....	.....	.....	.80	.....	.....	.....	.53	.....	.....	.....	.08	3.34
Blissfield	Raisin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bloomingdale	L. Michigan	.....	.....	.....	.08	.10	.....	.....	.02	T.	.....	T.	T.	T.	.45	.32	.....	.....	.....	.....	.....	.....	.....	.05	.....	.....	.....	.....	.....	.....	.....	1.56	2.58
Cadillac	Manistee	.18	.....	.....	.77	.....	.....	.....	.....	.....	.....	.....	.28	.....	.....	.....	1.05	1.45	.....	.....	.....	.....	.....	.96	.....	.....	.....	1.07	.....	.....	.....	.30	6.06
Cassopolis	St. Joseph	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Charlevoix	L. Michigan	.....	.....	.....	.06	.....	.....	.....	.....	.....	.....	.....	.....	.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.80	.....	.....	.....	.....	.....	.....	.....	.80	2.26
Charlotte	Kalamazoo	.....	.....	.....	.....	.27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.60	1.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T.	2.03
Cheboygan	Cheboygan	.....	.05	.....	.80	T.	.....	.....	.....	.....	.....	.....	.70	.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.60	.....	.....	.....	.....	.....	.....	.....	.85	3.10
Clinton	Raisin	.....	.....	.....	.10	.70	.....	.....	.....	.....	.....	.....	.....	.....	.39	.41	.....	1.27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.28	.....	.....	.....	3.15
Coldwater	St. Joseph	.13	.....	.....	.02	.28	.....	.....	.....	.06	.....	.....	.....	.....	.38	.39	T.	.45	.....	.....	.15	.....	.....	.06	.....	.....	.....	.02	.....	.....	.12	.41	2.47
Croton	Muskegon	.....	.....	.....	.....	.06	.....	.....	.16	.37	.....	.....	.07	.....	.....	.03	.44	.91	.....	.....	.....	.....	.....	.08	.....	.....	.....	.....	.....	.....	.....	.04	2.16
Detroit	Detroit	.01	.....	.....	1.79	.06	.....	.....	.....	.....	.....	.....	.27	.....	.35	.....	.37	.38	T.	.....	.32	.....	.....	.04	.....	.....	.....	.87	.....	.01	T.	.01	4.48
Durand	Saginaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
East Tawas	Lake Huron	.....	.....	.....	.30	.10	.....	.....	.....	.....	.....	.....	.08	.....	.....	.....	.65	.....	.....	.03	.12	.....	.....	.....	.....	.....	.....	.80	.....	.....	.....	T.	2.08
Eloise	Rouge	T.	.01	.....	.25	.60	.....	.....	.....	.....	.....	.....	.10	.....	T.	.13	.....	.25	.....	.....	.....	.....	.....	.06	T.	.....	.....	.01	2.15	.08	.....	.....	3.64
Five Channels	Au Sable	.....	.....	.....	.09	.04	.....	.....	.....	.....	.....	.....	.03	.....	.....	.....	.20	.26	.....	.20	.23	.....	.....	.18	.....	.....	.....	.27	.17	.....	.....	.05	1.72
Flint	Saginaw	.....	.....	.....	.85	1.22	.....	.....	.....	.....	.....	.....	.18	.....	.....	.....	.....	.....	.....	.....	.60	.....	.....	.03	.....	.....	.....	1.75	.....	.....	.....	.....	4.63
Frankfort	Betsey	.....	.....	.....	.47	.10	.....	.....	.12	.....	.....	.....	.47	.....	.....	.....	.40	.20	.....	.....	.....	.....	.....	.68	.....	.....	.....	.70	.....	.....	.....	.21	3.35
Ganges	L. Michigan	.....	.....	.....	.....	.18	.....	.....	.27	.....	.....	.....	.....	.....	.08	.44	.18	.....	.....	.....	.03	.....	.....	.12	.....	.....	.....	.....	.....	.....	.....	.29	1.59
Gaylord	Cheboygan	.....	.08	.....	.90	T.	.....	.....	.....	.....	.....	.....	.43	.24	.....	.....	.....	.39	.....	.....	T.	.....	.....	.03	T.	.....	.....	.33	.....	.....	.....	.51	2.91
Gladwin	Saginaw	.....	.....	.....	T.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.20	.....	.....	T.	.....	.....	.20	.....	.....	.....	1.30	1.10	.....	.....	T.	3.80
Grand Haven	Grand	.....	.....	.....	T.	.05	.....	.....	.60	.....	.....	T.	.01	.03	.34	.....	.12	.....	.....	.....	.....	.....	.....	.13	.....	.....	.....	.....	.....	.03	.....	.26	1.57
Grand Rapids	do	.....	.....	.....	T.	.27	.....	.01	.18	.01	.....	.....	.02	.....	.37	.....	.54	T.	.....	.....	T.	.....	.....	.09	.....	.....	.....	.....	.....	T.	.....	.47	1.96
Grape	Raisin	.03	.02	.....	.06	1.76	.....	.....	.....	T.	.....	.....	.15	.....	.21	.19	.....	.37	.....	.....	.....	.....	.....	.02	.....	.....	.....	.20	.28	.....	.07	.....	3.36
Grass Lake	Grand	.....	.....	.....	.10	.30	.....	.....	.....	.....	.....	.....	T.	T.	.....	.30	.....	1.22	.....	.....	.....	.....	.....	.05	.....	.....	.....	.80	.....	.....	.....	T.	2.77
Grayling	Au Sable	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.40	.....	.....	.....	.52	.....	.....	.....	.....	.....	.....	.11	.....	.....	.....	.57	.....	.....	.....	.63	2.23
Greenville	Grand	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harbor Beach	Lake Huron	.....	.....	.....	.80	.....	.....	.....	.....	.....	.....	.....	.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.50	.....	.....	.....	.13	.....	.....	.....	.....	1.58
Harrison	Saginaw	.....	.....	.....	.19	.27	.....	.....	.....	.....	.....	.....	.07	.....	.....	.....	.24	.83	.....	.....	.....	.....	.....	.....	.....	.....	.....	.34	.74	.....	.....	.....	2.68
Harrisville	Lake Huron	T.	.....	.....	T.	.....	.....	.....	.....	.....	.....	.....	.14	.08	.....	.....	.27	.02	.....	.54	.....	.....	.....	.31	T.	.....	.....	.32	.06	.....	.....	.03	1.77
Hart	Pentwater	.....	.....	.....	.12	.....	.....	.....	.30	.....	.....	.40	.....	.....	.....	.....	.80	1.00	.....	.....	.....	.....	.....	.65	.....	.....	.....	.35	.....	.....	.....	.....	3.62
Hayes	Pigeon	.....	.....	.....	.73	.....	.....	.....	.....	.....	.....	.....	.25	.....	.....	.....	T.	.35	.....	.18	.....	.....	.....	.03	.....	.....	.....	.65	.12	.....	.....	.03	2.34
Highland	Huron	.....	.....	.....	.17	.73	.11	.....	.....	.....	.....	.....	.....	.....	.....	.41	.....	.41	.....	.....	.....	.....	.....	.07	.....	.....	.....	2.06	.10	.....	.....	T.	4.06
Hillsdale	St. Joseph	.....	.....	.....	T.	.60	.....	.....	.....	.09	.....	.....	.....	.05	.55	.....	.....	.24	.....	.....	.....	.....	.....	T.	.....	.....	.....	.....	.....	.....	T.	.02	1.55
Holland	L. Michigan	.....	.....	.....	.....	.60	.....	.....	.23	.02	.....	.....	.....	T.	.18	.24	.18	.....	.....	.....	T.	.....	.....	.08	.....	.....	.....	.....	.....	.....	.....	.10	1.63
Houghton Lake	Au Sable	.....	.....	.....	.79	.....	.....	.....	.....	.....	.....	.....	.20	.....	.....	.....	1.03	.....	.....	.....	.15	.....	.....	.54	.....	.....	.....	.53	.....	.....	.....	.37	3.61
Howell	Saginaw	T.	.....	.....	T.	.05	.....	.....	.....	.....	.....	.....	T.	.....	.....	.....	.....	.75	.....	.....	T.	.....	.....	.01	.....	.....	.....	.90	.....	.....	.05	.05	1.81
Ivan	Manistee	.....	.01	.....	.68	.06	T.	.....	.03	.....	.....	.....	.34	.03	.....	.....	.35	.15	.....	.....	T.	.....	.....	.10	.....	.....	.....	.45	.....	.....	.....	.38	2.58
Jackson	Grand	.....	.....	.....	.15	.52	.....	.....	.....	T.	.....	.....	.03	.42	.....	.55	.06	1.13	.02	.....	.....	.....	.....	.05	.....	.....	.....	.37	.....	.....	T.	T.	3.30
Jeddo	St. Clair	.22	.....	.....	1.32	.....	.....	.....	.....	.....	.....	.....	.20	.....	.....	.....	.05	.90	.....	.15	.42	.....	.....	.04	.....	.....	.....	T.	.....	.....	.....	.....	3.30
Johannesburg	Cheboygan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kalamazoo	Kalamazoo	.....	.....	.....	.....	T.	.....	.....	T.	.....	.....	.....	.....	.....	.25	1.00	T.	.....	.....	.....	T.	.....	.....	T.	.....	.....	.....	.....	.....	.....	.....	.70	1.95
Lansing (Agr. Col.)	Grand	.....	.....	.....	.31	.53	.....	.....	.04	.....	.....	.....	.10	.....	.03	.....	1.09	.19	.....	.....	.....	.....	.....	.03	.....	.....	.....	.40	.....	.....	.....	.13	2.85
Lansing (Capitol)	do	.....	T.	.....	T.	.70	.24	.....	.....	.04	.....	.....	.13	.....	.....	.07	.....	1.63	.....	.....	.....	.03	.....	.....	.05	.....	.....	.....	.33	.....	.....	.....	3.22
Lapeer	Saginaw	.30	.....	.....	.22	1.35	.....	.....	.....	.....	.....	.....	.17	.....	.....	.....	.....	.52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.56
Ludington	Pere Marquette.	.07	.01	.19	1.04	.53	.....	.....	.29	.21	.....	T.	.74	.....	.....	.....	.76	T.	.....	.08	T.	.....	.....	.18	.....	.....	.....	.07	.....	.01	.....	.14	4.32
Luther	Manistee	.....	.....	.....	1.10	.05	.....	.....	.06	.....	.....	.....	.48	.....	.....	.....	.96	.10	.....	.....	.....	.....	.....	.11	.....	.....	.....	.20	.....	.....	.....	.37	3.43
Mackinaw	Lake Huron	.....	.10	.....	.50	.....	.....	.....	.....	.....	.....	.....	1.00	.28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	2.88
Mancelona	L. Michigan	.....	.....	.....	1.35	.....	.....	.....	T.	.....	.....	.....	.....	.35	T.	.....	.37	.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.42	.....	.....	.....	.91	3.65
Manistee	Manistee	.....	.10	.....	.36	.48	.....	.....	.18	.....	.....	.....	.48	.....	.....	.....	.95	.....	.....	.....	.....	.....	.37	.....	.....	.....	.70	.....	.....	.....	.....	.30	3.92
Marshall	Kalamazoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Midland	Saginaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morenci	Maumee	.01	.....	.....	.....	1.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.42	.....	.31	.....	.....	.....	.....	.....	.03	.....	.....	.....	.61	.....	.....	.....	.....	2.42
Mount Clemens	Clinton	T.	T.	.....	1.30	.70	.....	.....	.....	.....	.....	.....	T.	.....	.....	.....	.....	.70	.....	.....	.....	.....	.....	T.	.....	.....	.....	1.60	.60	.....	.....	.....	4.90
Mount Pleasant	Saginaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.30	.60	.....	.....	.....	.....	.....	.21	.....	.....	.....	.57	.....	.....	.....	.11	2.79
Muskegon	Muskegon	.....	.....	.....	.....	.....	.....	.....	.20	.....	.....	.....	.....	.....	.....	.....	.90	.....	.....	.....	.....	.....	.....	.02	.....	.....	.....	.....	.....	.....	.....	.01	1.13
Old Mission	L. Michigan	.....	.....	.....	.....	.15	.....	.....	.....	.....	.....	.....	.61	.03	.05	.....	.....	.04	.....	.05	.....	.....	.....	.42	.....	.....	.....	.20	.....	.02	.....	.56	2.13
Olivet	Kalamazoo	.....	.....	.....	.23	.60	.....	.....	T.	T.	.....	.....	.....	.....	.03	.34	.35	.13	T.	.....	.....	.....	.....	.....	.....	.....	.....	.09	.....	.....	.15	.21	2.13
Omer	Lake Huron	.....	.....	.....	.70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.70	.....	.....	.....	.....	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.50	3.90
Onaway	Cheboygan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.55	.....	.....	.....	.....	.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Owosso	Saginaw	.....	.....	.....	.....	.55	.....	.....	.01	.....	.....	.....	.20	.....	.03	.11	.....	1.10	.....	.....	.01	.....	.....	.01	.....	.....	.07	.....	.....	.....	.....	.....	2.09
Petoskey	L. Michigan	.....	.....	.....	.30	.....	.....	.....	.....	.....	.....	.....	.60	.....	.....	.....	.....	.....	.....	.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.50	1.90
Plymouth	Rouge	.....	.....	.....	.81	T.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.15	.....	.....	.....	.....	.....	T.	.....	.....	.....	1.70	.....	T.	.....	.....	2.66
Pontiac	Clinton	T.	.....	.....	.15	1.35	.....	.....	.....	.....	.....	.....	.08	.....	.....	T.	.....	1.91	.....	.....	.....	.....	.....	T.	.....	.....	.....	2.68	.34	.....	.....	.....	6.51
Port Austin	Lake Huron	.06	.....	.....	.24	.12	.....	.....	.....	.....	.....	.....	T.	.....	.....	.....	.....	.35	.....	.....	.06	.....	.....	.01	.....	.....	.....	.....	.05	.....	.....	.....	0.89
Port Huron	St. Clair	.01	.....	.....	2.00	.17	.....	.....	.....	.05	.....	.....	.06	.....	.....	.....	.53	1.21	.....	T.	.20	.....	.....	.01	.....	.....	.....	.06	.....	.....	.....	T.	4.30
Reed City	Muskegon	.09	.....	.....	.20	T.	T.	.....	.04	T.	.....	.....	.22	T.	.....	.....	.78	.52	.....	.....	.03	.....	.....	.44	.....	T.	.....	.....	.93	.....	.....	.16	3.41
Roscommon	Au Sable	.....	.....	.....	.85	.08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.76	.09	.....	.....	.01	.....	.....	.01	.....	.....	.....	.49	.08	.....	.....	.94	3.31
Saginaw East Side	Saginaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saginaw West Side	do	.....	.....	.02	.54	T.	.....	.....	T.	.....	.....	.....	.05	.....	.....	.....	1.32	T.	.....	.....	.27	.....	.....	.11	.....	.....	.....	2.34	.....	.....	.....	.10	4.75
St. James	L. Michigan	.....	.....	.....	.....	.16	.....	.....	.....	.....	.....	.....	.95	.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.20	.....	.....	.....	.90	2.36
St. Joseph	St. Joseph	.....	.....	.....	.....	.10	.....	.....	.25	.....	.....	.....	.....	.....	.75	1.60	.....	.....	.....	.....	.....	.....	.....	.50	.....	.....	.....	.....	.....	.....	.....	.12	3.32
Sandusky	Lake Huron	.54	.....	.....	1.98	.09	.....	.....	.....	.....	.....	.....	.34	.....	.....	.....	.....	.71	.....	.....	.06	.....	.....	.04	.....	.....	.....	.....	.....	.....	.....	.....	3.76
Saranac	Grand	.....	.....	.....	.....	.50	.....	.....	.09	.....	.....	.....	.20	.....	.....	.15	.....	1.46	.....	.....	.....	.....	.....	.09	.....	.....	.....	.....	.....	.....	.....	.36	2.85
South Haven	L. Michigan	.....	.....	.....	.....	.80	.....	.....	.40	.....	.....	.40	.55	.42	.....	T.	.....	T.	.....	T.	.....	.....	.....	.11	.....	.....	.....	.....	.....	T.	.....	.37	3.05
Thornville	Saginaw	.....	.....	.....	.80	.60	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.10	.35	.....	.....	.....	.....	.....	.09	.....	.....	.....	.30	.....	.....	.....	.....	2.36
Traverse City	L. Michigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.30	.....	.....	.....	1.60	.....	.....	.....	T.	1.90
Vassar	Lake Huron	.....	.....	.....	.38	1.26	.....	.....	.....	.....	.....	.....	.18	.....	.....	.....	.....	1.20	.....	.....	.....	.....	.....	.20	.....	.....	.....	.....	1.20	.....	.....	.....	4.42
Wasepi	St. Joseph	.....	.....	.....	1.05	.16	.....	.....	T.	.03	.....	.....	.....	.....	.50	.75	.....	.....	.....	.....	T.	.....	.....	.15	.....	.....	.....	T.	.....	.....	.10	.13	2.87
Webber Dam	Grand	.....	.....	.....	.....	.....	.....	.....	.05	.....	.....	.....	.09	.....	.04	.....	.48	1.30	.....	.....	.....	.....	.....	.05	.....	.....	.....	.01	.....	.....	.....	.27	.....
West Branch	Lake Huron	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ypsilanti	Huron	T.	T.	.....	.30	.40	.....	.....	.....	T.	.....	.....	.32	.....	.01	.08	.....	.30	T.	.....	.18	.....	.....	.03	T.	.....	.....	1.80	.32	.03	.....	.....	3.77
Ohio.																																	
Akron ‖	Lake Erie	.....	1.49	.01	.....	.15	1.44	.....	.....	.08	.32	.....	.02	.13	.49	.16	.....	.60	T.	.....	.25	.....	.....	.....	.17	.....	.....	.....	.01	.10	.22	.....	5.64
Antwerp	Maumee	T.	.....	.....	.....	1.15	.....	.....	.13	.....	.....	.17	.....	1.30	1.40	.....	.....	.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.16	.....	.....	4.47
Benton Ridge	do	.25	.....	.....	.....	1.43	.....	.....	.....	.02	.....	.....	.....	T.	1.54	.79	T.	.59	T.	.....	T.	.....	.....	T.	.43	.....	.....	.86	T.	.....	.14	.....	6.05
Bowling Green	Lake Erie	.10	.....	.....	T.	.70	.....	.....	.....	T.	.....	.....	.04	.30	.34	1.00	.02	.74	.....	.....	.....	.....	.....	T.	.....	.....	.....	.....	.....	.....	.21	.....	3.45
Bucyrus ‖	Sandusky	.....	1.10	.....	.....	.10	.60	.....	.....	.....	.....	.....	.07	.....	2.40	.50	.....	.65	T.	.....	.03	.....	.....	.....	.20	T.	.....	.....	.03	.....	.10	.....	5.78
Cleveland (1)	Lake Erie	T.	T.	.....	2.59	.25	.....	.....	.....	T.	.....	.....	.15	.15	.10	.13	.01	.03	.....	T.	T.	.....	.....	.06	.19	.....	.....	1.15	.....	.04	.....	.....	4.85
Cleveland (2)	do	T.	.....	.....	3.10	1.13	.....	.....	.....	T.	.....	.....	.26	.28	.06	.21	.01	.04	.....	.....	T.	.....	.....	.20	.13	.....	.....	2.12	.....	.17	.....	.....	7.71
Conneaut	do	.....	.24	.....	.36	.83	.09	.....	.....	.36	.....	.....	.58	.33	.....	.....	.....	.34	.....	.....	.....	.....	.....	.....	.10	.....	.....	.....	.15	.....	.59	.....	3.97
Findlay ‖	Maumee	.....	.26	.....	.....	.32	.45	.....	.....	.....	.09	.....	T.	.....	1.02	1.20	.....	1.45	.....	.01	.....	.01	.....	.....	.30	T.	.....	.....	.44	.08	.05	.....	5.68
Fremont	Sandusky	1.70	.04	.....	.13	.13	.....	.....	.....	.15	.....	.....	.14	.20	.60	.33	.....	.40	.....	.....	T.	.04	.....	.11	.....	.....	.02	.....	.37	.43	.....	.....	4.79
Hedges	Maumee	.02	.....	.....	.....	.72	.....	.....	.....	.....	.....	.....	.06	1.30	.93	.....	.....	.....	.....	.....	.....	.....	.....	.15	.....	.....	.....	.....	.....	.20	.....	.....	3.38
Hillhouse	Lake Erie	.....	.42	.....	.35	1.25	.12	.....	.....	.13	.....	.....	.52	T.	.....	.....	.....	.19	T.	.....	T.	.....	.....	T.	.....	.....	.....	.....	.50	.27	T.	.33	.....	4.08

TABLE 2.—*Daily precipitation for July, 1913. District No. 4*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
***Ohio*—Contd.**																																	
Hiram	Lake Erie	T.	.16	.59	1.13	.18				.60			.32	.18	.10	.16		.20						T.	.16						T.		3.78
Hudson	do	.15	.10		.30	.72	.23			.20			.12	.12	.44	.46		.12		.56					.09						.20		4.74
Lima ‖	Maumee		.65				.20			.19			T.		2.35	1.06		T.			T.			.24			.16	.68	.58	.06		4.73
Medina	Lake Erie	.27			.14	.66				.10			.19	.08	.28	.44		.31		.54												3.95
Montpelier	Maumee				.50	.37	.05			T.		T.			.38	1.80		.05			T.			.04			T.			.76		2.12
Napoleon	do				.34							.34			.75		.06											.55	.03		.05	3.42
New Bremen	do	.25		T.	.27	.46				.40			.09		.52	.65	.40				T.			.01						.37	T.	6.22
North Royalton	Lake Erie				1.35	.75	.35			.30			.28		.30	.50		.58		.26	.04				.35			.81	.35				3.64
Norwalk ‖	do	.02	.49			.24	.80				.05				1.10	.15		.38				T.			.38				.03				3.28
Oberlin	do	.16	.05		.04	1.09	.01			.12			.05	.06	.46	.18	.31					T.			.33				.20	.21	.01		4.17
Ottawa	Maumee		.12		.08	.48							.22		1.80	.80	T.			T.				T.	.28			.24	.08		.07		2.19
Sandusky	Lake Erie	.03	.01		.13	.71				.05			.19	.22	.23	.14	.13	.05						.15				.14			.01		5.41
Tiffin	Sandusky	.36	.02		T.	.98				T.			.12	.10	.70	.33	T.	.98			T.			.12	.28			.10	.88		.44	T.	3.38
Toledo	Maumee	T.	.01		.14	.71				.03			.07	T.	.25	.17	.14	.01			.03			T.				.40	.78		.62	.02	8.97
Upper Sandusky	Sandusky	1.16	.05			T.	.68						.22	.40	3.08	1.58			.88		T.					.20		.32	.40				3.05
Vickery	Lake Erie	.29	.02		.03	1.15				T.			.17	.12	.14	.22		.62			.02			.08				T.	.15		.04	T.	3.95
Wapakoneta	Maumee	.37			.19	.36				.30			.09	.10	1.49	.94	.04							T.	.04				T.		.03		3.87
Wauseon ‖	do	.07	.02		.01	.08	.56			T.			.21		.20	1.76		.73							.05	.09			.08	T.	.01		3.07
Wickliffe	Lake Erie		.24		.04	1.20				T			.66	.12	.09			.08							.19			T.	.41	T.	.04		
Pennsylvania.																																	
Erie	Lake Erie	T.	.18		.05	.17	T			.36			.26	.12				.03			.01			.04				.02	.04		.02		1.36
New York.																																	
Adams Center	L. Ontario									.20	.35		.60	.24							T.	T.		T.	.32				.64				2.35
Angelica	Genesee		.18		.30		.16	.05		.28	.02									.12	T.			.49				T.	.09				1.90
Appleton	L. Ontario		.16		.15	.02				T.	.03		.24											T.	.06				.16				0.84
Auburn	Oswego		T.			.23				T.	.40		.24								.02			.28	.65			.50					2.30
Avon	Genesee					.53	T.				T.		.38								.90			.05	.36				.10				2.32
Brockport	L. Ontario		.38		.02	.11							.32								.35				.39	T.		T.	.03				1.60
Buffalo	L. Erie		.16		.16	.01	T.			.06	T.		.06					.03			.14			.08	.30				.03				1.03
Canisius College	do		.23		.20					.08			.36					T.			1.04			.11	.62				T.				2.64
Canton	Grass		T.		.02		.23	T.	.07	.45	.01		.39	.04	T.				.43	.11	.01	T.		.10	.23	.01			.01	.02			2.13
Cape Vincent	St Lawrence	.19	.07							1.36		.06	.37						.28	.06	.10			.12				.50					3.11
Chazy	Champlain						.03													.95									.70		.10		1.78
Chestnut Lawn	Genesee		.05		.12	.35	.06	.02		.05			.14								.05	.02		.01	.19	.09			.11				1.26
Dannemora	Champlain		T.								.12		T.		.31					.15	.15		.50	.05	.50				T.	.06	.50		2.34
Elba	L. Ontario		.25			.33							.20								T.				.36								1.14
Fayetteville	Oswego		T.			.08	T.			.03	.11		.02												.50				T.				0.74
Gabriels	St. Regis		T.			.12		.06	.06	.65	.06		.30	.07	.05				.18	.03	.02				.20				2.25		.01		4.06
Geneva	Oswego				.70	T.	T.		.03	.10			.23							T.	.40			.48	.09			.06					2.09
Harkness	Champlain				.01			.06	.01	.14									.48	.09	.54	.02			.05	.09			1.82		.47		3.78
Hemlock Lake	Genesee		.03		*	.33	T.			.17	.03		.24								.30			T.	.75			T.	.05				1.90
Hunt	do		.06		.04	.16				.12			.30								.17				.26				.15				1.26
Ithaca	Oswego		.01		.01	.59	T.	T.	T.	.04			.13	.19				.02	T.		.01			.04	.52	.01		.02	T.				1.59
Keene Valley	Au Sable					.21	.03	.14	.04	.14	.08		.14	.09	.05				.36	T.	.05	.43			.07	.32				.96	.32			3.43
King Ferry	Oswego					.24			T.	.22			T.											.22	.23	T.							0.91
Lake George	Champlain								.20	.04	.22		.26	T.					.08	T.	T.	.26	T.	T.	.30				.45				1.81
Lake Placid Club	Au Sable					.53	.15	T.		.25	.33		.06	.15	.25	.20			.25	.24	.23	.11			.19	.22			.44	.15			3.75
Lauterbrunnen	Genesee		.04		.06	.36	.04			.06	T.		.13					T.			.04	.02		T.	.18	.13			.11				1.17
Lockport	L. Ontario		.44		.44								.34								T.				.20	T.			.02				1.44
Lowville	Black							.01		.34	1.20		.03	.80	.02						.01				.03				.15		.02		2.61
Moira	St. Lawrence						.07		T.	T.	.22		.22	.15	T.				.30						.53	.18			1.07		.07		2.81
Nehasane	Black	T.	T.			.34	.03	.03	.01	.37	.82	.04	.77	.10	.06			T.	.04	.06	.47				.09	.24			1.01	T.			4.48
North Lake	do						.06	.14			1.15		.38								.14				.40	.07			.65				2.99
Ogdensburg	St. Lawrence		T.						.08		.28		T.	.54	T.	T.			.32	.18	T.	T.			.70				T.	.30			2.40
Old Forge	Black							.12	.05	.07	1.10		.31	.02	.25					.05	.25	.03		.09	.25				.12				2.71
Oswego	L. Ontario	.03	.01		.01	.06				.98	.07		.71					T.						T.	.35	.04		.01	.06				2.33
Otto	L. Erie																																1.58
Palermo	L. Ontario	.11	.02			.02	T.				.62	.04		.36								T.			.37	T.			.04				1.07
Perry City	Oswego		.08			.12	T.	.01	T.	.02				.21	.05			.02	.10		T.			.05	.41								2.86
Philadelphia	St. Lawrence		.03						.03	.12	.51		.63			.06		T.	T.	T.	.79				.20				.49				3.32
Potsdam	Raquette							.11			.57			.44						1.66				.18	.22			.14				2.72
Ranger School	Oswegatchie	T.	.02			.05	.04	.04	.01	.09	.50	T.		.61	.03	T.					.35	.20	.15	T.	.12	.20			.31				3.98
Raquette Lake	Raquette		T.	.09			.28	.04		.23	1.38	.12		.75					T.	.28	.40	.08			.09	.08			.16				2.08
Rochester	Genesee		.18		.03	.73		T.	T.	.10	.04		.23								.34			.04	.36				.03				0.67
Romulus	Oswego				.14		T.		T.	.09		.08													.36								2.07
Scottsville	do				.37						.16		.38								.78			.30				.08					1.29
Shortsville	do		.03			.45				.07	T.		.07								.62								.05				2.39
Skaneateles	do	.02	.01		.85	.02				.23	.01		.10	.03										.85	.22			.05					0.95
Syracuse	do	T.	T.		.08	.07	T.			T.	T.		.03					T.			T.			.38	.39				T.				4.35
Tupper Lake	Raquette		.18			.18	.24		.40	.30	1.20			.36						.05	.35	.32	.11		.04	.12			.50	T.			4.08
Volusia	L. Erie		.30		.50	.20	T.			T.	.75		.24	.22				.20			T.				.10			.33	1.18		.06		2.88
Wanakena	Oswegatchie	T.	.01			.03	.13	.03	.01	.12	.54	T.	T.	.60	.04	T.				.35	.20	.15	T.		.13	.21			.33					2.71
Watertown	Black	.04					.02			1.02	.35		.35						.01	.01	.03				.22				.66	T.	T.		2.87
Wedgwood	Oswego		.08		.65	.07		.01	.05	.13	.05		.14	.46				.03	.01		.11			.26	.65	.17							5.03
Westfield	L. Erie		.31		1.70	.39	T.			.87			.33	.21				.31						T.	.04			.06	.81				2.09
York	Genesee		.02		T.	.50	T.			T.	T.		.22								.87			.06	.32				.10				
Vermont.																																	
Burlington	Champlain		T.			.16	T.	T.	T.	.03	.24		.20	T.					.28	.01	.18	.02		.03	.22	.18			1.05	.08	.15		2.83
Cornwall	do																																
Enosburg Falls	do	T.	.02			.22	.08	.02	T.	T.	.32	.02		.18	.33	.02	.02		1.84	.30	.02	.07			.40	.17		.03	.50	.46	.57		5.59
Hyde Park	do																																
Northfield	do	T.	.02			.43	.04	.01	T.		.68		.28	.01					.06		.04	T.		T.	.08	.26			1.41	T.	.05		3.37
Wells	do							T.	.37		.71	.04		.26	.04				.16	.71				.19	T.				.36				2.84

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures for July, 1913. District No. 4, Lake region.*

Date.	Duluth, Minn.		Wisconsin.						Chicago, Ill.		Fort Wayne, Ind.		Upper Michigan.										Lower Michigan.					
			Florence.		Green Bay.		Milwaukee.						Escanaba.		Ewen.		Houghton.		Marquette.		Sault Ste. Marie.		Alpena.		Battle Creek.		Cadillac.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	78	56	84	65	84	63	83	68	80	75	93	74	88	63	80	60	76	58	82	55	75	58	85	68	87	71	81	71
2....	60	49	80	53	79	63	82	66	81	72	91	69	72	57	82	42	70	52	66	50	74	52	76	64	93	63	84	62
3....	75	55	89	64	90	65	85	68	94	74	94	70	85	64	87	60	84	57	91	61	86	55	95	64	95	67	90	66
4....	67	51	85	64	85	72	85	68	94	77	93	72	78	65	79	59	76	57	69	54	81	59	79	66	93	70	84	67
5....	72	52	76	62	78	65	85	65	92	73	91	71	81	57	78	54	67	51	78	49	79	49	86	65	89	72	82	65
6....	74	52	69	52	72	59	74	58	80	65	76	60	69	49	76	56	66	48	69	46	56	46	65	53	74	63	72	55
7....	79	57	76	48	80	55	76	57	77	63	78	53	73	52	77	46	75	58	72	58	68	49	76	51	78	48	73	51
8....	82	57	77	51	72	59	78	58	89	67	88	60	69	55	80	47	78	56	80	59	76	47	77	52	84	58	74	59
9....	73	52	74	40	74	60	78	59	83	66	86	63	71	52	79	45	65	50	72	53	63	53	78	56	81	65	74	60
10....	62	47	69	47	71	51	66	55	66	60	80	56	68	47	74	40	65	46	57	48	57	47	68	50	77	51	68	58
11....	52	43	67	54	72	52	74	54	81	60	84	54	66	52	71	49	65	49	70	47	72	44	62	45	82	52	74	47
12....	62	45	69	50	74	59	80	63	84	67	82	69	69	54	75	51	58	49	70	50	66	52	75	57	79	65	71	60
13....	68	51	73	42	73	56	83	56	92	65	93	66	69	53	70	56	66	48	67	50	57	48	67	48	86	65	69	57
14....	60	49	79	45	74	55	75	56	81	64	87	63	69	50	75	60	66	48	71	49	63	48	75	47	85	58	78	45
15....	58	48	72	56	72	60	72	57	75	67	85	65	69	50	82	50	66	48	60	48	74	48	69	50	85	62	83	55
16....	61	45	80	57	76	60	79	60	92	70	86	65	67	60	76	50	64	52	71	54	72	52	66	51	86	65	80	59
17....	76	61	79	57	74	66	74	62	83	65	87	70	71	60	75	55	71	51	65	53	71	54	74	57	83	69	73	62
18....	78	60	75	55	82	64	78	63	76	65	82	66	79	60	76	52	75	57	77	62	68	53	82	59	85	65	79	62
19....	74	56	69	50	79	60	82	62	84	67	83	64	77	56	74	48	71	52	72	55	68	51	80	57	83	60	77	65
20....	70	52	78	38	71	54	69	58	69	62	77	60	67	52	76	50	67	52	63	53	69	49	70	52	78	58	70	55
21....	78	53	79	59	77	50	70	54	69	59	80	56	68	44	75	43	75	50	76	51	75	46	71	46	79	53	73	44
22....	74	59	70	57	83	61	82	61	84	62	83	58	75	61	80	50	75	61	77	59	72	56	83	54	83	49	79	57
23....	67	48	68	49	79	63	79	63	77	68	80	63	70	53	80	50	63	52	65	56	67	50	76	55	69	62	73	62
24....	72	47	------	------	71	53	71	56	70	62	75	59	69	53	82	51	69	51	64	55	64	49	68	50	74	57	69	51
25....	77	53	76	41	72	54	70	59	71	63	76	54	70	48	80	40	76	56	78	56	75	44	70	44	78	47	72	49
26....	61	51	78	52	83	55	80	63	85	66	86	56	72	55	78	40	75	56	78	58	77	51	78	50	87	59	81	55
27....	72	53	86	61	86	66	93	73	94	76	92	71	79	64	82	43	73	54	79	62	84	61	89	66	96	67	86	65
28....	62	49	76	49	76	61	75	64	80	70	92	71	73	57	77	50	70	51	63	56	72	54	79	60	92	70	79	68
29....	62	49	84	56	85	61	91	61	99	70	93	72	76	61	84	57	77	56	69	57	81	50	73	54	95	64	87	68
30....	63	49	85	60	89	65	82	66	89	74	95	75	74	63	92	67	81	55	86	58	81	56	73	59	96	69	86	60
31....	73	55	79	65	81	65	86	67	88	74	95	69	80	58	86	55	81	62	82	61	78	58	78	57	94	65	85	68
Mns..	69.1	51.7	76.7	53.3	77.9	59.6	78.6	61.3	82.5	67.4	85.9	64.3	73.0	55.6	78.6	50.8	71.2	53.0	71.9	54.3	71.6	51.3	75.6	55.1	84.7	61.6	77.6	59.0

Date.	Lower Michigan.						Ohio.								Erie, Pa.		New York.								Vermont.			
	Detroit.		Muskegon.		Saginaw, west side.		Cleveland.		Lima.§§		Sandusky.		Toledo.				Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	91	74	78	71	85	70	88	73	96	74	89	73	93	74	87	75	79	73	92	70	92	72	93	73	94	73	95	68
2....	84	72	80	65	88	66	82	68	90	69	86	72	87	72	80	65	75	63	78	56	83	64	78	67	76	61	74	57
3....	92	71	93	65	94	66	90	67	92	66	93	69	92	69	86	65	86	65	87	49	91	64	86	61	84	56	85	49
4....	95	71	92	70	92	70	90	70	93	73	95	73	94	74	87	72	83	69	95	65	95	69	93	71	94	61	92	50
5....	88	69	88	63	87	66	84	68	91	74	90	65	90	67	81	70	77	71	86	67	85	69	86	69	90	70	90	66
6....	73	55	73	62	68	50	74	60	79	64	76	63	76	57	74	58	74	53	78	53	75	54	76	54	82	59	84	59
7....	77	50	77	53	77	46	70	60	79	47	74	55	76	52	70	59	72	52	73	50	74	54	70	53	62	55	59	52
8....	81	63	76	58	80	55	80	55	90	55	79	57	80	61	75	60	71	60	75	47	78	56	75	58	73	51	71	43
9....	85	63	74	62	83	53	82	67	88	65	84	67	86	65	80	66	75	64	79	58	82	64	77	64	77	56	78	45
10....	70	54	71	54	75	50	67	58	81	54	69	57	73	55	66	61	64	57	64	52	66	54	67	55	72	55	73	57
11....	75	54	84	50	77	53	74	50	86	54	74	54	76	56	69	51	73	53	74	48	73	50	70	52	73	50	72	46
12....	81	69	78	63	76	65	82	68	84	66	83	71	82	69	78	66	78	57	83	49	84	56	83	52	80	46	79	39
13....	87	61	73	58	81	54	87	65	92	65	91	67	90	68	79	63	73	58	77	57	83	58	84	58	78	62	78	60
14....	75	59	78	59	81	52	70	62	86	65	73	64	78	61	71	57	67	54	70	56	72	52	69	54	67	60	70	57
15....	78	61	80	60	84	58	74	58	86	64	75	62	77	64	74	57	76	59	72	54	76	55	72	56	74	60	72	55
16....	80	60	85	62	83	58	80	59	85	66	81	65	83	67	74	58	77	58	80	50	78	54	77	55	77	55	74	50
17....	78	65	77	67	75	64	79	67	89	67	81	69	82	70	73	65	73	64	82	58	77	64	79	60	83	54	80	46
18....	85	67	78	66	84	65	78	69	89	67	84	67	86	69	75	66	71	65	85	57	83	64	81	65	81	58	81	54
19....	84	65	76	60	82	60	80	68	83	64	83	71	84	66	78	64	72	61	78	55	82	61	80	62	80	54	79	50
20....	77	60	78	63	72	57	73	64	80	59	74	63	79	61	72	63	73	57	75	53	74	59	75	61	77	56	78	51
21....	79	57	79	50	77	49	73	61	80	55	77	63	79	57	73	60	74	58	77	53	76	58	74	56	76	56	75	51
22....	82	61	80	53	81	52	78	58	83	54	82	60	83	62	78	57	76	62	79	54	82	56	82	57	83	53	80	45
23....	75	67	75	65	69	62	86	64	84	63	84	66	80	65	86	64	83	65	84	61	87	62	86	61	86	57	84	49
24....	75	60	70	50	70	53	72	63	78	66	76	65	76	60	73	63	71	59	78	59	77	61	74	64	73	56	71	55
25....	72	56	68	48	74	48	67	59	78	50	71	62	73	56	70	58	72	53	73	56	74	57	70	58	72	56	70	47
26....	84	63	84	53	85	58	77	59	88	53	78	61	81	61	73	56	82	60	79	53	81	55	82	53	82	53	79	42
27....	90	66	88	48	92	66	85	66	93	65	95	66	93	68	86	67	82	69	90	59	94	65	90	68	88	57	87	46
28....	86	69	82	54	84	65	82	69	93	69	87	70	93	68	82	70	78	70	88	69	87	71	86	74	77	65	73	61
29....	92	69	90	50	90	63	88	72	96	70	88	71	94	73	86	70	84	68	88	62	88	70	85	67	84	66	86	62
30....	90	71	99	63	86	67	83	76	92	70	87	76	86	69	82	74	88	71	85	59	84	69	87	66	82	65	81	54
31....	90	68	79	62	91	64	85	70	95	64	84	70	93	71	82	67	93	68	86	53	89	62	88	63	80	54	82	46
Mns..	82.3	63.5	80.1	58.9	81.4	58.9	79.4	64.3	87.1	63.1	82.0	65.6	83.7	64.7	77.4	63.5	76.5	61.8	80.3	56.2	81.3	60.6	79.8	60.9	79.3	57.7	78.5	52.1

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

GENERAL SUMMARY.

The month was somewhat warmer and drier than usual, but this statement is inapplicable to all portions of the district, as the conditions that obtained over the northern half were quite the reverse of those that obtained over the southern half. Over the former section the month was comparatively cool and unusually wet, while over the latter section it was the warmest month in the last 12 years, and one of the driest of its name on record. The drought was especially severe in central Illinois, vegetation suffering greatly. The hot weather caused much personal discomfort, especially among urban dwellers.

No new records for high temperature were established at stations whose records date prior to July, 1901, but the extreme figures reached in that memorable month were closely approached in some instances. At Springfield, Ill., the month had 18 days with a temperature of 90° or higher, making 37 days this season with a like record.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within District 5.	Temperature.				Precipitation.					
	Mean.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average snowfall.	Average number of days with precipitation.
North Dakota	65.1	−1.6	103	35	2.22	−0.49	4.83	0.95	.....	9
Minnesota	67.7	−1.2	100	33	5.57	+2.26	15.16	2.00	.....	11
South Dakota	68.0	−2.3	97	45	3.17	+0.34	3.23	3.11	.....	10
Wisconsin	68.7	−0.5	100	31	7.01	+3.14	10.81	3.50	.....	10
Iowa	76.0	+2.6	108	46	1.61	−2.81	6.23	T.	.....	5
Missouri	80.9	+3.7	107	48	1.40	−2.63	3.87	0.15	.....	5
Indiana	73.8	+0.7	105	45	3.80	−0.27	1.44	0.88	.....	8
Illinois	77.9	+2.5	108	41	2.04	−1.61	6.55	0.05	.....	6

TEMPERATURE.

The mean temperature for the district as a whole was 71.9°, or 0.9° higher than the normal. This average condition prevailed only over a narrow strip in the central part of the district; northward thereof the month was cooler than usual, the departure of the mean temperature from the normal being 4° over an area in North Dakota, where it was the coolest July in the last several years. Over the southern half of the district the month was warm, being the warmest month since July, 1901, over much of that territory. The highest monthly mean temperature was 82.5°, at Steffenville, Mo.; and the means were above 80° over most of the Missouri area and in southern Illinois. The lowest mean temperature was 61.4°, at Hannah, N. Dak., and Roseau, Minn. In almost all parts of the district the highest monthly temperature occurred during the closing days of the month. As a rule the temperature reached 100° or higher over the region where the mean temperature was above the normal, but over the northern half of the district the highest temperatures ranged generally between 90° and 100°, but few stations reported a monthly maximum temperature of less than 90°. The highest temperature reported was 108°, at Pella, Iowa, and Ottawa, Streator, and White Hall, Ill. The lowest monthly temperatures at the various stations occurred on or about the 10th or 24th generally, but scattered stations reported them on other dates. The lowest temperature of the month was 31°, at Hayward, Wis., on the 25th. That was the only station reporting freezing temperature, but several points in the north experienced temperatures under 40°. Light frost occurred on low ground at Trout Lake, Wis., on the 21st.

PRECIPITATION.

The abnormalities of distribution in the precipitation of the month were as marked as were the differences in temperature. Over central Minnesota the month was the wettest July on record, while in central Illinois it was the driest July in more than half a century. The average precipitation for the entire district was 3.65 inches, or 0.51 inch less than the normal. With the exception of North Dakota the precipitation was deficient in those States having an excess of temperature and vice versa. The drought in central and southern Illinois was severe, and crops have been generally damaged. In those sections July was the third consecutive month of largely deficient precipitation. The greatest monthly precipitation in the district was 15.16 inches, at Collegeville, Minn., and the least was a trace, at Ottumwa and Fort Madison, Iowa. At both La Harpe and Monmouth, Ill., stations having records covering 34 and 21 years, respectively, the month was the driest on record; 0.23 inch of rain fell at La Harpe and only 0.05 at Monmouth. The average number of rainy days was 8.

RIVERS.

A good stage of water was maintained throughout the month in the Mississippi River and navigation benefited thereby. In Wisconsin and Minnesota small streams were quite high for the season.

MISCELLANEOUS.

There was more than the usual sunshine over much of the district, this being especially true in southern sections. At Des Moines, Iowa, the percentage of the possible amount was 88, which is the highest on record for any month. The average number of clear days was 18; partly cloudy, 9; cloudy, 4. Southwesterly winds prevailed, but in North Dakota and Minnesota they were mostly northwesterly. The highest velocity reported was 58 miles an hour from the west, at St. Paul, Minn., on the 31st.

STORMS IN JULY, 1913.

Severe storms were more numerous than usual, and they caused much damage to property and loss to crops. The storm of the 4th–5th in southern Minnesota and adjoining Wisconsin territory was one of the notable storms of the month. Near Pipestone, Minn., it is reported to have assumed tornadic proportions, and many buildings were wrecked, trees uprooted, animals killed, and several persons injured. This storm was also severe in the vicinity of St. Cloud, Minn., and at La Crosse, Wis. On the 8th squall winds occurred over the northeastern quarter of Illinois; trees, crops, and buildings suffered to a considerable extent, and 3 or 4 persons were killed; also hail injured crops over some areas. A severe thunderstorm, accompanied by hail, visited a few counties in west-central Illinois on the 15th; one person was killed by lightning. On the night of the 26th–27th a windstorm passed over northern Wisconsin; reports indicated that this storm may have been of tornadic character at some points. Houses and barns were blown down, many telegraph and telephone poles were broken off, and damaging hail fell over a large territory. On the 30th an electrical storm passed over Cairo, Ill., and there was a heavy downpour of rain, 2.56 inches falling in 1 hour and 31 minutes. Southern Minnesota and western Wisconsin were visited by a severe electrical storm on the 31st.

THE DEVELOPMENT OF WATER POWER IN WISCONSIN, AND THE RELATION OF PRECIPITATION TO STREAM FLOW.

[By W. R. BORMANN, Assistant Observer, Milwaukee, Wis.]

The utilization of the water-power resources of this country has become one of the greatest economic questions of the present time. Wisconsin has been endowed with resources which permit of extensive investigations and experiments in the field of water-power development, and this State has been one of the most progressive in this line of work. Wisconsin now is fifth in rank with other States in developed water power, having to her credit a total of 202,952 horsepower.

The importance of the rivers of this State as a factor in the distribution of its settlement and in its development industrially and otherwise has long been recognized. Statistics show that already a vast sum of money has been expended in the construction of dams, reservoirs, etc. The capital invested in the manufacture of paper alone amounts to $13,325,000, and the money invested in public utilities and other industries which operate by water power would swell this figure enormously.

The following table shows the growth in the development of Wisconsin water powers:

	Horsepower
1870	33,700
1880	45,300
1890	56,700
1900	99,000
1905	124,400
1912	202,952

The annual saving represented by the power of 1912 over cost of an equivalent amount of steam power, computed at $20 per horsepower, amounts to over $4,000,000.

The Wisconsin rivers furnish an excellent field for the development of water power. They receive their run-off from territory within this State, and empty it into Lakes Superior and Michigan and the Mississippi River. The sources of the streams lie principally on a divide consisting of a comparatively flat highland which crosses the northern part of the State. This plateau has an altitude ranging from 1,200 to 1,600 feet above sea level. The drainage is chiefly in a southerly direction to the Mississippi Valley and through Lake Winnebago and Green Bay to Lake Michigan. The aggregate fall in the main streams is from 350 to 800 feet.

The St. Croix, Chippewa, Black, and Wisconsin Rivers drain 70 per cent of the northern half of the State, and all empty into the Mississippi River. Lake Superior rivers drain only 9.3 per cent and those flowing into Green Bay the remaining 20.7 per cent.

The St. Croix River heads in the northwest corner of Wisconsin, about 20 miles from Lake Superior, at an elevation of about 1,000 feet, and flows southerly into the Mississippi River, forming part of the boundary between Minnesota and Wisconsin. Its total fall is 344 feet in 168 miles, of which the St. Croix Falls site with 50 feet fall is developed.

Chippewa River rises within 20 miles of Lake Superior near the Michigan border at an elevation of about 1,600 feet and flows southerly into the Mississippi River, falling about 850 feet in the distance of 270 miles. The main stream is formed by the east and west branches, and the Flambeau, Red Cedar, Jump, Yellow, and Eau Claire are tributaries. About 100 feet of the available fall is developed.

Black River rises in Medford County at an elevation of about 1,200 feet and flows southerly into the Mississippi River, falling some 600 feet in a distance of 140 miles. The falls at Hatfield and Ross Eddy and at some other sites, aggregating 170 feet, have been developed.

Wisconsin River rises in a chain of lakes near the Michigan boundary, at an elevation of about 1,600 feet, and flows southerly into the Mississippi River, falling 1,050 feet in about 400 miles. This is the most important water-power stream in the State, and on it are located some power plants which date back to the earliest settlement of Wisconsin. About 350 feet of the available fall is developed.

Rock River rises in Dodge County at an elevation of about 1,000 feet and flows southerly into Illinois. No power sites are shown on this stream, and those which appear to be commercially resourceful have been developed.

Milwaukee River rises in Fond du Lac County at an elevation of about 1,000 feet and flows southerly and easterly into Lake Michigan. It falls 400 feet in about 100 miles, of which 125 feet are developed.

Oconto River rises in Forest County at an elevation of about 1,500 feet and flows southeasterly into Green Bay and Lake Michigan. The Oconto falls 950 feet in 90 miles, of which 230 feet are developed; 190 feet of the fall occurs in the lower 33 miles.

Peshtigo River rises in Forest County at an elevation of about 1,600 feet and flows southerly into Green Bay and Lake Michigan. It falls 1,040 feet in 94 miles, of which about 50 feet are developed.

Menominee River rises in western Michigan and northern Wisconsin as the Michigamme and Bruele, at elevations of about 1,600 feet. This river also flows southerly, forming part of the boundary between Michigan and Wisconsin, and empties into Green Bay and Lake Michigan. From the junction of the Michigamme and Bruele the fall is about 700 feet in 100 miles, of which 210 feet are developed.

Manitowoc River rises in Calumet County at an elevation of about 1,000 feet. It falls 400 feet in 50 miles, of which 70 feet are developed.

Sheboygan River rises in Sheboygan County at an elevation of about 1,000 feet and flows southeasterly into Lake Michigan. Its fall is practically all developed.

Fox River rises in Columbia County at an elevation of about 800 feet and passes through Lake Winnebago at an elevation of 750 feet, which separates it into the upper and lower Fox Rivers, the lower Fox emptying into Green Bay and Lake Michigan. The fall in the upper Fox is about 35 feet in 110 miles and has no power opportunities. The lower Fox falls 170 feet, which is practically all developed.

Wolf River rises 25 miles south of the Michigan boundary at an elevation of 1,600 feet and flows southerly into the Fox River about 10 miles west of Lake Winnebago. The Wolf falls 820 feet in 160 miles, practically all concentrated in the upper 80 miles.

Montreal River rises in Iron County at an elevation of about 1,600 feet and flows northeasterly into Lake Superior. It forms part of the boundary between Michigan and Wisconsin. Its fall of about 1,000 feet occurs in 50 miles.

Bad River rises in Ashland County at an elevation of about 1,500 feet and flows northerly into Lake Superior. Its fall of 900 feet occurs in about 50 miles, and none of this is developed.

Bois Brule River rises in Douglas County at an elevation of about 1,000 feet and flows northerly into Lake Superior. Its fall of 400 feet occurs in 35 miles, none of which is developed.

Black River rises in Douglas County at an elevation of 1,000 feet and flows northerly, emptying into the Memadji River, which flows into Lake Superior. The fall of 400 feet occurs in 30 miles, none of which is developed.

Generally speaking, the hydrological and physical conditions in Wisconsin favor economic hydropower developments. The valleys, as a rule, have good breadth, the majority of stream beds are in rock, and the fall of the streams is not great, so that dams holding immense quantities of water are not difficult to construct. The possibilities of stream-flow regulation are also especially favorable on account of the large number of lakes on and near the headwaters of the different river systems, and most of them lie at altitudes of about 1,200 feet. Northern Wisconsin, including at least half of all the territory drained by the Wisconsin River, was originally timbered with many varieties of fine woods. Much of this timber was pine, and the first work of the lumberman in this territory consisted of cutting and manufacturing pine lumber. Much of this was done before the country had been penetrated to any great extent by railroads, and before the idea of transporting logs by rail had been evolved. Pine was easily floated and every stream became a highway for the transportation of logs to sawmills. Most of the streams were rapid and the logs could be driven in them only in times of high water. The natural floods and freshets were not sufficient for carrying all the logs, and the construction of reservoir dams, used to store waters with which to produce artificial floods, began early. All of these dams were designed and used originally, not for the purpose of producing a uniform flow, but for the very opposite purpose, that of producing artificial floods, thus intensifying the irregularities of the streams.

Lumbering as an industry having greatly declined in Wisconsin during more recent years, the people became aroused to the fact that this State was not properly conserving its natural resources, and their attention was attracted to the possibilities of its water power. Engineers furnished statistics which showed that the streams of Wisconsin were blessed with approximately 1,000,000 horsepower. Business men began to realize that a vast amount of energy was going to waste in the rivers of Wisconsin, and if this energy could be harnessed and applied to useful purposes that great economy would be effected and a rich return would result. Through the untiring efforts of many public-spirited citizens proper State legislation was secured, which provided for the protection of public and private interests which seemed likely to be affected by the building of dams and reservoirs along the various streams, and this State now ranks fifth among all other States in utilized water power.

But it was found that some of the streams did not maintain a sufficient flow during certain seasons of the year and at other times there was a superabundance of water, and in some instance destructive floods. It was evident that some general plan must be devised in order to maintain a more regular flow of water during the different seasons of the year and during cycles of dry and wet years. The remedy of the situation seemed to lie in the construction of reservoirs in the headwaters which would to a considerable extent control the flow of the rivers below. It was also seen that the construction of numerous reservoirs would do much to mitigate the effect of severe floods which occurred frequently during the spring freshets. In making a survey of this problem it was found that nature had made provision for an ecnonomic construction of these reservoirs in a network of more than 1,000 lakes, the most of them being situated in the high-plateau region, thus laying an extensive foundation for reservoirs which could be made to serve as sources of supply to nearly all important streams.

The conditions in the headwaters of the Wisconsin River were found to be unusually favorable for storing water. At one point on this stream a dam 15 feet in height has now been constructed, giving a water storage fully 15 miles in length, spreading over 50 square miles. The Wisconsin Valley Improvement Co., which constructed this dam, is now operating 17 reservoirs in the headwaters of the Wisconsin River. These reservoirs control a drainage area of 1,200 square miles, with a reservoir service of approximately 62 square miles and storage capacity of 6,000,000,000 cubic feet of water. This service is given to 20 mills on the Wisconsin River above Kilbourn, with a total developed head of 335 feet. It is readily seen that the impounding of such an enormous amount of water during times of unusually heavy precipitation has an important effect in reducing the severity of floods, as well as furnishing a more regulated flow at all times.

Wherever the natural flow of the stream is to be utilized for power development, the minimum flow determines the design of the plant. Wherever storage is to be employed the annual yield of the drainage area is desired. If the observed stream flow or run-off for a long term of years is available, it is reasonably safe to depend on such records as a basis for water-power estimates without an investigation of the precipitation over the watershed. But long-continued records of run-off are seldom available, while the records of precipitation at many places cover a long term of years. By studying

records of precipitation and run-off made during periods for which both records are available on the stream itself and on contiguous watersheds, it is possible to estimate variations in flow which have occurred during the past, and consequently the variation which may be anticipated in the future. In studying the precipitation records it must be borne in mind that local conditions sometimes cause considerable variations in the amounts received, and averages should be drawn from observations made at several points on or adjacent to the drainage area. Such averages will usually represent the condition of rainfall to be expected over the drainage area, but occasionally for a particular month the amount that actually occurs may differ considerably from the average.

While the run-off of a stream is the direct effect of the precipitation that falls on its drainage area, there are many factors that may obscure and vary the relation between the two. Temperature, topography, geological conditions, vegetation, the presence of lakes and swamps, and other physical conditions affect and control the disposal of precipitation and the time at which it will appear in the stream flow. The influence of precipitation on the flow of streams is further dependent on the character of precipitation, its distribution over the watershed, and manner of occurrence. A steady rainfall, and one which is general over the watershed, falling at a time when the water in the main stream is considerably depleted, will furnish more satisfactory power than heavier showers which are local in character. The water-power engineer is especially interested in the low-water flow of the stream, for that flow controls the constant power that can be maintained throughout the year. The total annual precipitation of course has not as great an influence on the low-water flow of the stream as its distribution throughout the year; and it is sometimes the case that in years when the total precipitation is below the average, a favorable distribution in its occurrence will give more satisfactory power than during some years when the precipitation is greater in amount but the distribution more unsatisfactory.

The foregoing remarks lead to the conclusion that precipitation records are invaluable to engineers in their efforts to solve problems in hydraulics. These records are often the basis upon which immense projects are planned. This fact should be given consideration in the selection of cooperative stations, to have them located so as to give as fair a distribution as possible over the watersheds, but at the same time serving other interests which are aided by climatological data.

The accompanying charts furnish information regarding the topography of the country and normal annual and monthly precipitation over the State. The principal streams are heavily outlined on the relief map, and power sites are indicated by means of small disks.

NOTE.—The normals of precipitation were obtained from stations having practically continuous records for the years 1891 to 1912, inclusive, and 47 stations were found available. At some stations a few months were missing, and estimated values were supplied based on a survey of the records of surrounding stations. Thus all stations afforded data for the same period of years.


WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
W.O. HOTCHKISS — STATE GEOLOGIST
RELIEF MAP
OF
WISCONSIN
SCALES { HORIZONTAL — 1 INCH = 7 MILES
VERTICAL — 1 INCH = 2500 FEET.
BASED UPON PUBLISHED AND UNPUBLISHED MAPS AND SURVEYS OF WISCONSIN GEOLOGICAL SURVEY, UNITED STATES GEOLOGICAL SURVEY, UNITED STATES CORPS OF ENGINEERS, UNITED STATES DEPARTMENT OF AGRICULTURE, RAILWAY COMPANIES AND MUCH OTHER INFORMATION.
DATA COMPILED BY W.O. HOTCHKISS AND F.T. THWAITES
MODELED BY E.H.J. LORENZ.
DISKS INDICATE
POWER SITES
ST. CROIX RIVER
MISSISSIPPI RIVER
WISCONSIN RIVER
MENOMINEE RIVER
PEWAUKEE RIVER
RED CEDAR RIVER
BRULE RIVER
PINE RIVER
OCONTO RIVER
DOOR
BROWN
PORTAGE
WOOD
PRICE
ONEIDA
FLORENCE
MARINETTE
LINCOLN
LANGLADE
TAYLOR
BARRON
BURNETT
DOUGLAS
BAYFIELD
ASHLAND
IRON
SAWYER
WASHBURN
RUSK
COLUMBIA
DODGE
RACINE

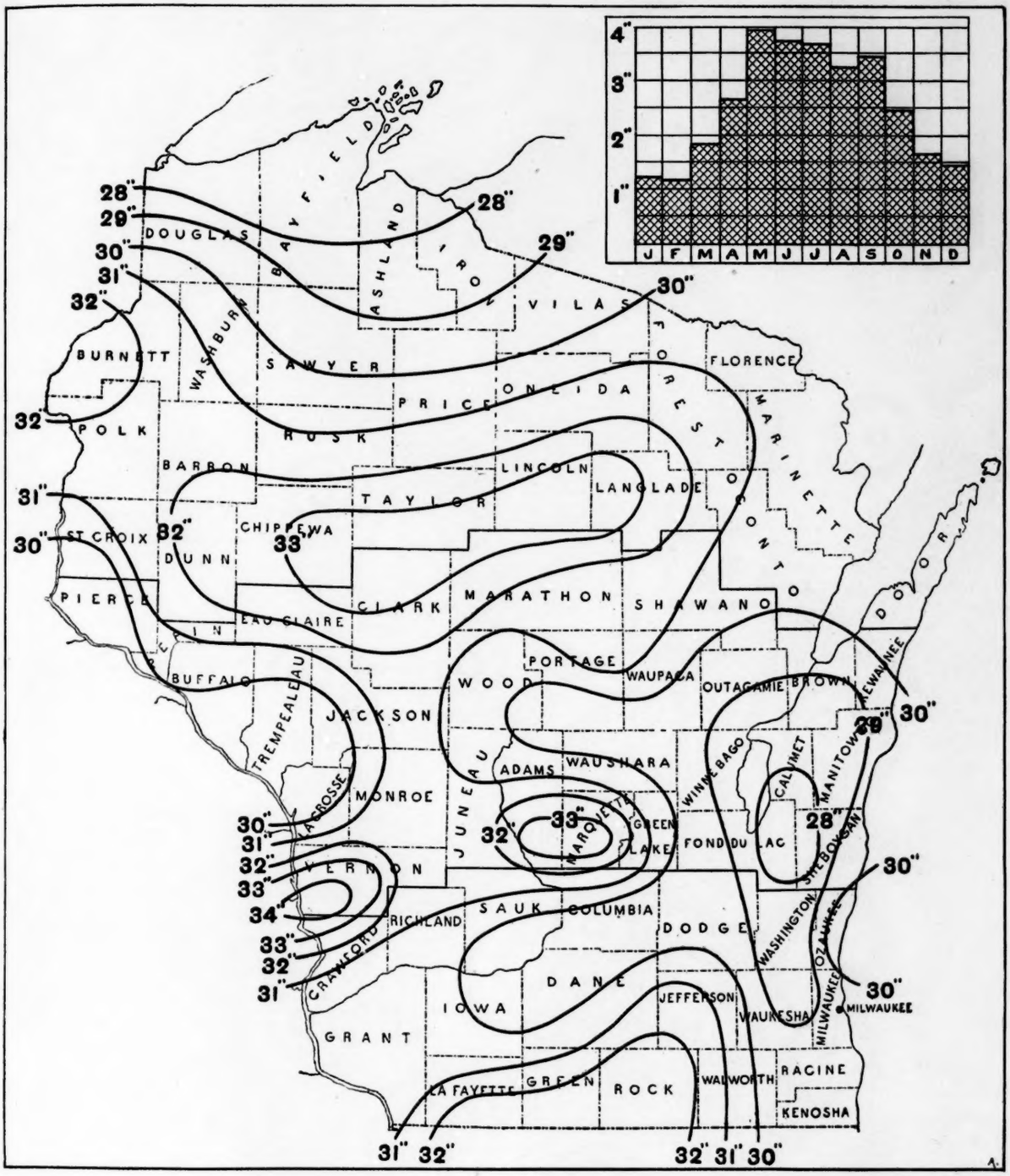

4"
3"
2"
1"
J F M A M J J A S O N D
BAYFIELD
DOUGLAS
ASHLAND
IRON
VILAS
FLORENCE
FOREST
MARINETTE
OCONTO
BURNETT
WASHBURN
SAWYER
PRICE
ONEIDA
POLK
RUSK
BARRON
LINCOLN
LANGLADE
TAYLOR
ST CROIX
CHIPPEWA
DUNN
PIERCE
EAU CLAIRE
CLARK
MARATHON
SHAWANO
DOOR
BUFFALO
TREMPEALEAU
JACKSON
WOOD
PORTAGE
WAUPACA
OUTAGAMIE
BROWN
KEWAUNEE
LA CROSSE
MONROE
ADAMS
WAUSHARA
WINNEBAGO
CALUMET
MANITOWOC
JUNEAU
MARQUETTE
GREEN LAKE
FOND DU LAC
SHEBOYGAN
VERNON
RICHLAND
SAUK
COLUMBIA
DODGE
WASHINGTON
OZAUKEE
CRAWFORD
DANE
JEFFERSON
WAUKESHA
MILWAUKEE
IOWA
GRANT
LAFAYETTE
GREEN
ROCK
WALWORTH
RACINE
KENOSHA
28"
29"
30"
31"
32"
33"
34"

TABLE 1.—*Climatological data for July, 1913. District No. 5, Upper Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota.																				
Amenia	Cass	954	17	68.3	0.0	95	29	44	24	45	2.58	− 0.73	0.62	0	8	16	3	12	w.	C. E. Wood.
Bottineau	Bottineau	1,638	21	64.0	− 1.7	99	29	41	13	45	1.55	− 1.00	0.72	0	12	10	14	7	se.	H. F. Steinmeir.
Bowbells	Burke	1,958	1	62.9	.....	96	29	40	28	47	2.12	.....	0.82	0	9	19	4	8	.....	G. H. Phelps.
Cando	Towner	1,488	12	67.0	+ 2.4	94	29	38	24	46	3.17	+ 0.28	2.00	0	8	.....	.....	.....	.....	E. T. Judd.
Crosby	Divide	.....	6	63.0	.....	90	29	43	10†	40	1.38	.....	0.64	0	4	25	3	3	nw.	H. C. Kaschau.
Devils Lake	Ramsey	1,482	8	64.2	− 3.9	95	29	44	20	38	1.47	− 2.31	0.37	0	12	13	9	9	w.	U. S. Weather Bureau.
Donnybrook	Ward	1,760	14	63.6	− 1.9	95	29	41	27†	46	1.81	− 1.15	0.51	0	8	23	5	3	nw.	C. J. Devore.
Dunseith	Rolette	.....	17	62.6	− 1.3	95	29	42	24†	39	2.85	+ 0.44	1.69	0	7	.....	.....	.....	nw.	C. E. Goodsell.
Eckman (near)	McHenry	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Yenny.
Fessenden	Wells	1,610	1	64.4	.....	96	7	39	24	45	1.66	.....	0.32	0	9	13	9	9	nw.	G. T. Seymour.
Forman	Sargent	1,249	21	67.6	− 1.6	103	29	46	24	46	2.45	− 0.47	0.90	0	6	10	14	7	nw.	A. Maltby.
Grafton	Walsh	827	21	64.8	− 2.6	93	29	37	24	41	2.02	− 0.51	0.82	0	8	22	5	4	ne.	A. R. T. Wylie.
Granville	McHenry	1,504	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. A. Christianson.
Hannah	Cavalier	1,568	8	61.4	.....	95	29	36	2	44	1.45	.....	0.51	0	5	15	11	5	nw.	J. Moffatt.
Hansboro	Towner	.....	5	63.4	.....	96	29	39	2	42	1.48	.....	0.54	0	11	28	0	3	nw.	Geo. Dale.
Hillsboro	Traill	901	7	68.6	.....	93	29	43	24	44	2.22	.....	1.08	0	11	20	7	4	w.	F. E. Mayall.
Lakota	Nelson	1,579	12	63.4	− 1.6	94	29	38	24	42	1.77	− 1.14	0.67	0	10	4	25	2	nw.	C. R. Pettes.
Langdon	Cavalier	1,615	17	62.0	.....	96	29	39	2†	42	1.88	.....	0.69	0	7	19	0	12	w.	J. Woolner.
Larimore	Grand Forks	1,134	18	65.7	− 0.5	95	29	41	24	40	2.34	− 0.69	1.18	0	10	19	6	6	nw.	J. M. Freeman.
Lisbon	Ransom	1,091	9	66.7	− 1.0	100	29	40	28	47	2.13	− 1.22	0.93	0	8	16	4	11	nw.	W. S. Adams.
McKinney	Renville	1,640	19	65.4	− 0.3	100	27	40	27†	60	3.15	+ 1.08	1.90	0	4	10	19	2	nw.	N. P. Swenson.
McLeod	Ransom	.....	1	66.7	.....	93	26	41	28	37	4.83	.....	1.79	0	8	16	7	8	n.	Martin Reinholt.
Manfred	Wells	1,605	10	64.6	− 1.5	97	29	40	24	47	1.67	− 0.79	0.34	0	8	19	9	3	nw.	P. B. Anderson.
Mayville	Traill	975	17	67.0	− 2.1	96	30	40	24	37	2.59	− 0.77	0.84	0	11	17	6	8	nw.	W. C. Gould.
Milnor	Sargent	1,097	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Hj. Edman.
Minot	Ward	1,557	17	65.6	− 2.4	96	29	46	9†	41	2.00	+ 0.04	0.76	0	8	18	3	10	w.	Louise Bates.
Minto	Walsh	820	20	65.5	− 1.6	92	29	40	2	41	2.58	− 0.21	0.95	0	11	12	12	7	nw.	S. S. Marsh.
Oriska	Barnes	1,270	8	67.1	.....	96	29	40	2†	46	1.77	.....	0.63	0	10	5	26	0	sw.	J. J. Taylor.
Park River	Walsh	998	9	65.9	.....	95	25	39	2	47	1.77	.....	1.05	0	13	24	3	4	nw.	P. J. Prochaska.
Pembina	Pembina	789	39	64.7	− 2.7	98	28†	35	24	58	0.95	− 1.64	0.60	0	6	15	8	8	w.	C. W. Shumaker.
Power	Richland	1,020	21	65.9	− 2.8	95	31	45	24	45	3.72	+ 0.37	1.50	0	7	15	7	9	nw.	J. A. Power.
Towner	McHenry	.....	11	65.1	− 1.0	97	29	41	9	45	2.16	− 0.38	0.83	0	9	3	25	3	nw.	B. Bagley
University	Grand Forks	830	21	65.9	− 1.3	91	29	41	24	35	2.86	+ 0.27	0.75	0	15	14	6	11	se.	U. S. Weather Bureau.
Wahpeton	Richland	962	19	66.0	− 3.2	96	29	46	14†	49	4.43	+ 0.37	2.00	0	8	10	11	10	nw.	Fred E. Smith.
Walhalla	Pembina	966	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ivanhoe Lee.
Westhope	Bottineau	.....	7	65.4	.....	97	29	43	9	41	1.13	.....	0.50	0	9	15	12	4	nw.	W. A. Meddaugh
Willow City	....do	1,471	21	62.9	− 2.5	95	29	37	24	44	1.46	− 0.71	0.70	0	9	12	16	3	nw.	M. A. Ostby.
Minnesota.																				
Albert Lea	Freeborn	1,229	22	72.5	+ 1.0	96	30	53	10†	32	3.17	− 0.81	1.10	0	6	15	14	2	sw.	Edward Carey.
Alexandria	Douglas	1,391	19	67.3[d]	− 2.1	94	29	49[h]	24†	38[h]	5.98	+ 2.59	1.86	0	9	12	7	12	nw.	P. O. Unumb.
Angus	Polk	870	11	64.0	− 1.7	89	29	35	24	40	3.51	+ 0.85	1.33	0	14	12	13	6	nw.	John Nadvornik.
Bagley	Clearwater	.....	7	62.6	.....	90	29	37	10	40	6.84	.....	2.50	0	8	8	22	1	nw.	Jens Nelson.
Baudette	Beltrami	1,084	3	64.5	.....	90	29†	39	2	38	4.70	.....	1.28	0	12	13	16	2	nw.	J. A. Gjelhaug.
Beardsley	Bigstone	1,090	17	69.4	− 0.2	100	29	44	10	41	2.27	− 1.17	1.00	0	8	10	14	7	nw.	G. L. Fitzgerald.
Bemidji	Beltrami	1,400	9	.....	.....	.....	.....	.....	.....	.....	5.79	.....	1.28	0	16	.....	.....	.....	.....	C. W. Warfield.
Bird Island	Renville	1,039	23	69.5	− 1.3	97	30	50	24	37	5.44	+ 2.25	1.31	0	13	19	6	6	nw.	Dr. F. L. Puffer.
Brainerd	Crow Wing	1,215	7	66.8	.....	91	30	44	24	34	6.75	.....	1.84	0	12[e]	15	8	8	.....	Theodore Miller.
Caledonia	Houston	1,179	20	71.3[e]	+ 0.2	92[e]	30	54[e]	25	29[f]	8.93	+ 5.03	1.70	0	9	16	10	5	nw.	W. D. Belden.
Campbell	Wilkin	975	7	66.2	.....	91	29	46	24†	39	4.20	.....	1.20	0	8	15	2	14	nw.	J. T. Neisess.
Cass Lake	Cass	1,300	6	.....	.....	.....	.....	.....	.....	.....	6.10	.....	1.72	0	14	.....	.....	.....	.....	C. W. Burns.
Collegeville	Stearns	1,282	20	67.8	− 3.3	86	30	52	28	29	15.16	+11.72	3.09	0	13	13	10	8	w.	F. Tembreull.
Crookston	Polk	863	24	66.8	− 1.5	90	29	46	24	36	4.60	+ 1.31	1.63	0	10	19	4	8	sw.	A. G. Andersen.
Detroit	Becker	1,364	17	64.8	− 2.5	91	29	39	28	38	4.51	+ 0.33	1.80	0	11	26	2	3	nw.	G. W. Peoples.
Ely	St. Louis	1,330	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Iver Wisted.
Fairmont (near)	Martin	1,240	26	71.8	+ 0.6	97	29	50	23	32	2.82	− 0.67	0.89	0	8	11	17	3	nw.	W. F. Wherland.
Faribault	Rice	1,003	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. A. B. Moulton.
Farmington	Dakota	902	25	71.2	+ 0.5	95	30	50	24	31	6.21	+ 2.77	1.56	0	15	18	4	9	sw.	E. D. Akin.
Fergus Falls	Otter Tail	1,210	21	67.8	− 2.0	92	29	49	13	31	6.49	+ 2.58	3.23	0	12	10	15	6	nw.	C. E. Kissinger.
Fort Ripley	Crow Wing	1,136	5	66.8	.....	94	30	40	4	39	6.26	+ 3.50	2.13	0	9	17	0	14	s.	J. J. Tucker.
Fosston	Polk	1,289	3	.....	.....	.....	.....	42	24	.....	3.02	.....	0.82	0	15	13	16	2	nw.	O. N. Hem.
Glencoe	McLeod	1,000	16	70.5	+ 0.8	96	30	50	24	32	5.40	+ 2.34	2.50	0	6	22	7	2	s.	L. V. Koos.
Grand Meadow	Mower	1,338	25	72.2	+ 0.8	95	29†	49	24†	34	4.63	+ 0.85	1.83	0	11	25	5	1	se.	C. F. Greening.
Gull Lake Dam	Cass	1,215	2	66.8	.....	91	30	45	28	35	6.20	.....	1.26	0	15	11	15	5	nw.	U. S. Engineer Corps.
Hallock	Kittson	815	14	65.1	− 0.9	94	29	35	24	43	2.29	− 0.90	1.10	0	12	17	5	9	n.	D. A. Robertson.
Halstad	Norman	870	7	66.0	.....	94	29	40	24	41	2.00	.....	0.50	0	10	22	5	4	s.	A. G. Holstrom.
Hinckley	Pine	1,050	8	66.6	.....	93	30	43	25	34	7.19	.....	2.00	0	12	11	12	8	e.	W. R. Newman.
International Falls	Koochiching	1,112	10	64.4[d]	− 1.0	94[d]	30	36[d]	23	40[d]	5.21	+ 1.71	1.76	0	6	11[d]	13[d]	3[d]	nw.	C. Ardies.
Itasca State Park	Clearwater	1,500	2	64.0	.....	87	29†	41	10†	36	6.20	.....	1.90	0	17	8	20	3	nw.	J. A. Stillwell.
Lake Crystal	Blue Earth	990	5	70.6	.....	93	30	50	10†	28	4.58	.....	1.52	0	9	25	4	2	s.	W. P. Cobb.
Leech Lake Dam	Cass	1,301	25	64.5	− 2.3	90	30	41	10†	37	7.31	+ 3.16	2.58	0	14	5	23	3	nw.	U. S. Engineer Corps.
Little Falls	Morrison	1,115	4	66.0	.....	.....	.....	41[d]	27	40[d]	.....	.....	.....	0	.....	22	4	5	e.	William Batters.
Littlefork	Koochiching	.....	3	61.5	.....	94	30	33	25	52	3.87	.....	1.35	0	13	5	20	6	.....	O. C. Olson.
Long Prairie	Todd	1,299	21	67.1	− 1.5	93	30	40	28	41	6.91	+ 3.42	1.83	0	8	15	9	7	se.	A. L. Sheets.
Lynd	Lyon	1,175	20	69.8	− 0.1	92	30	48	28	34	5.18	+ 2.20	2.62	0	9	20	9	2	nw.	J. W. Rouse.
Mankato	Blue Earth	758	15	.....	.....	.....	.....	.....	.....	.....	4.61	+ 1.22	1.53	0	16	24	2	5	sw.	C. G. Staley.
Milaca	Millelacs	1,072	14	66.2[d]	− 2.4	94[d]	30	42[d]	25	34[d]	8.86	+ 4.43	1.50	0	11	12[d]	9[d]	6[d]	nw.	C. H. Foss.
Milan	Chippewa	955	19	67.4	− 2.5	91	29†	48	2†	34	5.62	+ 2.52	1.21	0	9	14	10	7	se.	O. K. Opjorden.
Minneapolis	Hennepin	918	22	70.4	− 1.8	97	30	53	24	30	7.75	+ 3.94	2.11	0	15	11	12	8	w.	U. S. Weather Bureau.
Montevideo	Chippewa	900	23	69.4	− 1.4	95	29	50	24†	37	6.45	+ 3.56	2.85	0	10	16	8	7	nw.	L. G. Moyer.
Moorhead	Clay	935	32	67.0	− 1.7	94	29	46	24	37	3.26	− 0.48	1.06	0	12	20	9	2	nw.	U. S. Weather Bureau.
Mora	Kanabec	1,001	8	67.1	.....	92	30	43	28	44	7.56	.....	2.38	0	12	4	17	10	w.	Hans Peterson.
Morris	Stevens	1,170	28	67.8	− 2.4	92	29	49	28	34	5.83	+ 1.89	3.67	0	9	24	3	4	nw.	D. T. Wheaton.
New London	Kandiyohi	1,215	19	69.3	− 1.4	93	30	52	25	31	8.62	+ 5.04	2.15	0	12	8	20	3	sw.	Harold Swenson.
New Richland	Waseca	1,180	19	71.4	− 0.4	96	30	51	24	29	4.84	+ 1.22	1.68	0	7	20	9	2	nw.	N. O. Tyrholm.
New Ulm	Brown	791	33	71.8	− 2.2	99	30	51	24	36	4.94	+ 1.32	1.56	0	14	8	8	15	s.	A. L. Henle.
Osakis	Douglas	1,343	5	67.0	.....	92	29†	47	28	36	4.58	.....	1.12	0	9	16	9	6	nw.	J. B. Johnson.
Park Rapids	Hubbard	1,426	23	65.4	− 2.0	90	29†	43	28	42	6.49	+ 2.70	2.80	0	16	12	3	16	nw.	Dr. P. A. Walling.
Pierz	Morrison	.....	.....	66.2	.....	90	30	43	24	36	5.78	.....	1.72	0	9	18	4	9	nw.	E. H. Kerkhoff.
Pine River Dam	Crow Wing	1,251	26	67.0	− 1.6	92	30	42	24	39	8.08	+ 4.49	2.88	0	11	12	15	4	se.	U. S. Engineer Corps.
Pokegama Falls	Itasca	1,280	26	63.3	− 2.5	89	30	39	10	41	7.95	+ 3.95	1.60	0	14	17	10	4	nw.	Do.
Redlake	Beltrami	1,152	5	64.0	.....	88	29†	43	8†	38	3.67	.....	1.60	0	4	12	17	2	n.	A. C. Goddard.
Red Lake Falls	Red Lake	1,001	....	74.2	.....	98	29	55	26	31	.....	.....	.....	0	....	23	2	6	sw.	E. G. Buse.
Red Wing	Goodhue	680	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Louis Back.
Redwood Falls	Redwood	1,060	6	.....	.....	.....	.....	.....	.....	.....	4.28	+ 0.74	1.52	0	12	14	7	10	w.	E. V. Hockett.

TABLE 1.—*Climatological data for July, 1913. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota—Continued.																				
Reeds Landing	Wabasha	681	17	.....	.....	.....	.....	.....	.....	.....	6.55	+ 2.97	2.00	0	11	19	0	12	se.	John Deschneau.
Rochester	Olmstead	991	8	70.5	.....	97	29†	49	10†	37	5.10	.....	1.40	0	7	20	3	8	s.	Mary P. Leslie.
Roseau	Roseau	1,040	3	61.4	.....	87	29	34	2†	41	3.56	.....	0.75	0	15	20	9	2	nw.	M. J. Hegland.
St. Charles	Winona	850	22	70.6	+ 0.2	93[a]	29†	46[a]	21	40[a]	4.51	+ 1.15	1.67	0	7	21[a]	5[a]	4[a]	se.	S. W. Gleason.
St. Cloud	Sherburne	1,020	36	70.0	− 0.9	96	30	50	24†	36	9.49	+ 5.88	1.84	0	11	16	6	9	nw.	State Reformatory.
St. Paul	Ramsey	940	42	69.9	− 2.2	96	30	53	11	30	6.11	+ 2.71	1.98	0	15	14	12	5	nw.	U. S. Weather Bureau.
St. Peter	Nicollet	825	18	71.2	− 0.2	98	30	46	24	40	5.08	+ 1.38	1.40	0	12	20	10	1	w.	State Hospital.
Sandy Lake Dam	Aitkin	1,234	20	62.3	− 4.6	89	30	42	24	29	5.97	+ 2.09	1.62	0	12	2	24	5	nw.	U. S. Engineer Corps.
State Sanatorium	Cass	1,336	5	65.0	.....	90[a]	30	45[a]	24	35[a]	6.69	.....	2.10	0	10	13[a]	10[a]	7[a]	sw.	Dr. G. W. Beach.
Stillwater	Washington	694	7	.....	.....	.....	.....	.....	.....	.....	7.47	.....	1.94	0	13	14	5	12	sw.	Oscar Ostrom.
Taylors Falls	Chisago	759	6	69.4	.....	95	30	47	28	33	7.98	.....	2.00	0	11	17	8	6	nw.	Minneapolis Gen. Elec. Co.
Thief River Falls	Pennington	1,137	2	63.8	.....	90	29	38	24†	48	2.91	.....	0.75	0	9	17	3	11	s.	E. W. Lown.
Tracy	Lyon	.....	.....	73.6	.....	100	30	50	24	38	5.62	.....	1.29	0	10	12	19	0	nw.	A. H. Rowland.
Warren	Marshall	859	1	67.4	.....	95	8	42	24†	41	2.16	.....	0.97	0	10	10	14	7	.....	P. H. Holm.
Warroad	Roseau	1,069	3	63.4	.....	91	29	38	2†	42	4.29	.....	1.31	0	15	23	7	1	e.	G. A. Sawyer.
Winnebago	Faribault	1,100	15	72.1	0.0	96	30	52	10†	36	2.93	− 1.63	0.80	0	8	14	13	4	se.	H. H. Haight.
Winnibigoshish	Itasca	1,300	25	66.1	− 1.1	90	30	46	10	30	7.60	+ 3.64	1.92	0	14	23	2	6	n.	U. S. Engineer Corps.
Winona	Winona	700	17	74.3	+ 1.3	100	30	52	21†	33	6.15	+ 3.15	1.86	0	8	13	12	6	nw.	P. C. Myers.
Worthington	Nobles	1,593	18	69.3	− 0.7	92	30	49	10	32	2.34	− 1.57	0.80	0	11	16	5	10	sw.	M. P. Mann.
Zumbrota	Goodhue	917	17	69.2	− 1.8	94	30	47[a]	24	34[a]	3.75	.....	1.00	0	11	12[a]	17[a]	1[a]	nw.	W. C. Rowell.
South Dakota.																				
Milbank	Grant	1,148	22	67.6	− 2.3	97	29	45	10	40	3.11	+ 0.34	1.20	0	9	17	7	7	nw.	Miss Mary Patridge.
Sisseton	Roberts	1,202	7	68.4	.....	96	29	50	2†	34	3.23	.....	1.02	0	10	16	4	11	nw.	George Gray.
Wisconsin.																				
Antigo	Langlade	1,489	19	66.4	− 1.3	90	30	42	21†	35	8.34	.....	2.84	0	11	16	2	13	sw.	Elton C. Larzelere.
Barron	Barron	1,115	22	70.0	+ 1.9	92	30	45	10	42	8.73	+ 4.87	2.04	0	12	13	14	4	nw.	Wm. A. Kent.
Beloit	Rock	750	47	73.2	+ 0.2	100	30	47	11	43	5.66	+ 2.01	1.95	0	11	17	12	2	s.	Smith Observatory.
Big St. Germain Dam	Vilas	1,590	3	64.4	.....	87	29	37	25	38	6.59	.....	1.37	0	13	14	12	5	nw.	Fred Hessen.
Brodhead	Green	812	15	74.6	+ 1.4	100	30	51	25	34	9.73	+ 5.44	3.90	0	11	18	13	0	sw.	Hector D. Kirkpatrick.
Burnett	Dodge	880	9	69.4	.....	92	3	44	11	32	4.56	.....	0.97	0	12	7	15	9	nw.	George W. Smith.
Cornell	Chippewa	993	1	66.7	.....	92	30	41	25	35	7.21	.....	2.85	0	14	13	9	9	nw.	Brunet Falls Mfg. Co.
Cottage Grove	Dane	888	2	.....	.....	.....	.....	.....	.....	.....	8.40	.....	1.91	0	13	12	17	2	sw.	John E. Mellish.
Darlington	Lafayette	867	7	73.0	.....	100	30	47	25	35	6.10	.....	2.25	0	7	16	11	4	nw.	Sever P. Nelson.
Deerskin Dam	Forest	1,685	3	63.0	.....	92	30	35	25†	43	5.66	.....	0.92	0	12	13	12	6	w.	Wm. E. O'Neal.
Delavan	Walworth	920	22	71.9	− 0.1	94	1†	45	11†	36	5.66	+ 1.36	1.49	0	12	18	9	4	sw.	Elwood S. Austin.
Dodgeville	Iowa	1,220	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. H. Berryman.
Downing	Dunn	983	11	67.2	− 0.7	94	30	40	25	43	8.72	+ 4.71	2.00	0	10	6	3	22	se.	Eugene F. Stoddard.
Eau Claire	Eau Claire	800	22	70.0	− 0.8	94	30	47	25	31	6.53	+ 2.92	1.39	0	17	13	14	4	nw.	Robert D. Whitford.
Glen Flora	Rusk	1,475	1	65.4	.....	88	30	38	24	36	9.91	.....	2.47	0	14	15	11	5	nw.	G. A. Durgin.
Grand Rapids	Wood	980	14	69.0	− 0.6	96	30	44	25	34	4.58	+ 1.33	1.00	0	13	13	11	7	nw.	Geo. T. Nixom.
Grantsburg	Burnett	1,095	22	68.0	− 1.1	95	30	43	25	36	7.80	+ 3.37	1.50	0	11	22	2	7	nw.	Chester Ahlstrom.
Hancock	Waushara	1,091	21	71.0	− 0.1	95	30	44	28	39	5.33	+ 1.36	1.00	0	10	14	7	10	sw.	Frederick B. Hamilton.
Hatfield	Jackson	973	19	68.8	− 1.7	95	30	41	10	37	6.26	+ 2.23	1.74	0	12	6	17	8	nw.	Wis. Ry., Light & Pow. Co.
Hayward	Sawyer	1,107	22	66.7[f]	− 0.4	95[f]	30	31[f]	25	46[f]	.....	.....	.....	0	....	10[f]	12[f]	3[f]	s.	G. H. McElroy.
Hillsboro	Vernon	1,090	22	69.8	+ 0.5	95	30	45	25	33	6.91	+ 3.32	1.56	0	9	14	17	0	w.	Emil V. Wernick.
Koepenick	Langlade	1,683	22	64.3	− 2.8	88	30	36	21	37	9.76	+ 5.73	3.34	0	16	.....	.....	.....	sw.	Edward S. Koepenick.
La Crosse	La Crosse	714	41	71.8	− 0.8	95	30	53	25	28	5.71	+ 1.64	2.41	0	14	9	15	7	s.	U. S. Weather Bureau.
Lake Mills	Jefferson	897	22	71.4	− 0.1	94	4†	46	11	34	8.17	+ 4.19	2.38	0	12	14	16	1	sw.	S. Newton Dexter Smith.
Lancaster	Grant	1,070	22	72.6[a]	+ 0.7	98[a]	30	50[a]	11†	35[a]	.....	.....	.....	0	....	13[b]	14[b]	2[b]	sw.	Edward Pollock.
Long Lake	Oneida	1,592	5	64.0	.....	91	29	34	25	42	6.35	.....	1.03	0	16	11	16	4	w.	Louis Frank.
Madison	Dane	974	44	71.4	− 0.1	94	30	50	11	28	8.47	+ 4.48	2.47	0	14	16	10	5	sw.	U. S. Weather Bureau.
Marshfield	Wood	1,276	0	66.7	.....	93	30	40	25	35	3.50	.....	0.81	0	15	7	15	9	sw.	Agr. Exper. Station.
Mather	Juneau	962	9	68.0	.....	94	30	42	10	36	8.34	.....	2.04	0	12	13	11	7	w.	Frank Evans.
Mauston	....do	882	17	70.0	− 0.4	92	30	48	25	32	7.06	+ 2.71	1.90	0	8	17	13	1	sw.	Eugene L. Hitchcock.
Meadow Valley	....do	974	22	68.8	− 0.6	95	30	44	25	36	5.97	+ 1.93	1.10	0	15	3	25	3	nw.	Charles H. Johnson.
Medford	Taylor	1,420	24	67.0	− 1.7	92	30	43	21†	31	8.51	+ 4.24	1.55	0	12	18	9	4	w.	Wm. Zeit.
Merrill	Lincoln	1,267	7	68.6	.....	94	28	43	21	37	8.06	.....	2.13	0	14	6	13	12	sw.	O. F. Lueck.
Minocqua	Oneida	1,604	9	66.1	.....	91	30	44	14	30	6.60	.....	1.05	0	13	10	20	10	sw.	Benjamin W. Applebee.
Mondovi	Buffalo	738	5	69.4	.....	94	30	46	24	32	9.25	.....	1.82	0	17	13	14	4	nw.	Dr. Chas. Hebard.
Mt. Horeb	Dane	1,226	9	71.1	.....	96	30	50	7†	33	9.79	.....	3.50	0	12	19	7	5	nw.	W. M. Lewis.
Muscoda	Grant	666	4	72.8	.....	99	30	50	26	41	7.31	.....	1.60	0	9	24	1	6	nw.	Wm. Hessler.
Neillsville	Clark	996	23	69.4	− 0.4	99	4	45	21†	39	6.92	+ 3.01	1.70	0	10	.....	.....	.....	nw.	Wm. Heaslett.
New Richmond	St. Croix	990	8	68.4	.....	96	30	46	24	34	8.55	.....	1.81	0	16	10	21	0	nw.	Franc A. R. Van Meter.
Osceola	Polk	806	22	68.8	− 0.5	95	30	47	25†	36	7.66	+ 3.56	1.70	0	10	10	21	0	n.	Charles W. Staples.
Park Falls	Price	1,492	22	65.0	.....	87	3	41	25	36	6.97	.....	2.01	0	13	15	1	15	s.	Flambeau Paper Co.
Portage	Columbia	809	24	72.6	+ 0.6	95	4	52	11	29	6.61	+ 3.31	1.28	0	11	17	7	7	s.	James H. Martin.
Port Edwards	Wood	969	3	68.5	.....	95	4†	44	10†	41	4.63	.....	0.85	0	13	20	8	3	sw.	Nekoosa-Edwards Pa. Co.
Prairie du Chien	Crawford	628	22	73.6	− 0.2	99	30	52	25†	40	4.12	+ 0.54	1.52	0	8	24	0	7	nw.	James A. Gillis.
Prairie du Sac	Sauk	750	5	72.3	.....	96	4†	51	11†	33	9.55	.....	2.58	0	12	18	10	3	sw.	Wis. River Power Co.
Prentice	Price	1,551	15	64.6	− 0.7	92	30†	38	25	35	10.81	+ 6.54	3.09	0	14	4	9	18	s.	Joseph G. Lash.
Rest Lake	Vilas	1,600	0	64.8	.....	92	29	41	10†	33	7.84	.....	2.00	0	10	14	8	9	w.	A. F. Miller.
Rhinelander	Oneida	1,550	7	65.6	.....	90	30	40	20†	38	6.47	.....	1.95	0	14	16	3	12	sw.	Rhinelander Power Co.
Shullsburg	Lafayette	1,019	7	72.1	.....	96	30	47	11	36	4.72	.....	0.89	0	10	17	8	6	sw.	Harrison B. Chamberlin.
Solon Springs	Douglas	1,083	7	65.5	.....	94	30	39	25	40	6.10	.....	1.40	0	11	15	4	12	sw.	John M. Sayles.
Spooner	Washburn	1,104	19	66.6	− 2.4	95	30	42	24	35	8.23	+ 4.60	1.60	0	13	13	10	8	.....	Horace A. Bresee.
Stanley	Chippewa	1,082	9	66.2	.....	87	3†	42	25	31	4.76	.....	1.16	0	13	20	6	5	w.	W. Humphrey Scott.
Stevens Point	Portage	1,113	20	70.2	+ 0.4	94	30†	46	25	39	3.78	+ 0.44	1.00	0	5	4	20	7	sw.	Postmaster.
Sugar Camp Dam	Oneida	1,582	3	.....	.....	.....	.....	.....	.....	.....	5.49	.....	0.81	0	12	23	7	1	nw.	Lyman Haskins.
Tomahawk	....do	1,451	0	66.5	.....	91	30†	39	25	34	7.38	.....	2.30	0	11	19	1	11	s.	Victor Extrom.
Trout Lake	Vilas	1,400	1	64.8[b]	.....	88[b]	30	41[b]	10	30[b]	5.79	.....	1.60	0	9	7[b]	14[b]	8[b]	sw.	F. B. Moody.
Twin Lakes Dam	....do	1,625	3	.....	.....	.....	.....	.....	.....	.....	5.38	.....	2.40	0	7	14	13	4	sw.	Albert D. Hansen.
Valley Junction	Monroe	930	21	69.8	+ 0.3	94	30	45	21	38	8.54	+ 4.33	1.50	0	11	16	5	10	w.	J. J. Donahue.
Viroqua	Vernon	1,412	23	71.6	+ 0.8	94	30	50	24	31	9.27	+ 5.23	1.90	0	15	10	16	5	sw.	Henry E. Rogers.
Vudesare	Vilas	1,700	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Louis L. Thomas.
Watertown	Jefferson	824	22	70.0	− 0.6	93	3	48	11	29	4.41	+ 0.72	0.97	0	10	15	16	0	sw.	Charles J. Salick.
Waukesha	Waukesha	864	22	71.0[a]	− 0.4	94[a]	4	44[a]	11	34[a]	5.40	+ 2.02	1.12	0	11	14[a]	16[a]	0[a]	sw.	Carroll College.
Wausau	Marathon	1,212	18	66.7	− 1.9	91	30	42	21	33	6.41	+ 1.03	1.83	0	13	19	4	8	se.	A. A. Babcock, jr.
Weyerhaeuser	Rusk	1,297	11	65.8	− 2.1	93	30	40	25	34	8.78	.....	3.50	0	13	11	13	7	se.	Miss Etta Stiles.
Whitehall	Trempealeau	675	22	68.9	− 1.3	92	30	41	21	38	7.50	+ 4.02	2.00	0	9	11[f]	2[f]	12[f]	w.	Hans J. Haugh.

TABLE 1.—*Climatological data for July, 1913. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Iowa.																				
Albia	Monroe	959	15	79.2	+ 5.0	106	29	53	10†	38	0.11	− 4.82	0.06	0	2	24	7	0	sw.	J. I. Chenoweth.
Algona	Kossuth	1,213	39	74.6	+ 1.2	97	30	51	10†	33	3.11	+ 0.01	1.00	0	6	26	4	1	se.	Dr. F. T. Seeley.
Alta	Buena Vista	1,513	22	74.8	+ 2.9	99	30	53	10	34	2.27	− 2.41	0.86	0	7	19	11	1	s.	David E. Hadden.
Amana	Iowa	721	37	76.8	+ 3.1	102	29	52	21	36	0.61	− 3.64	0.38	0	5	23	6	2	s.	C. Schadt.
Ames	Story	926	37	76.4	+ 2.1	104	29	51	21	38	1.95	− 2.49	1.20	0	3	19	11	1	sw.	Iowa State College.
Baxter	Jasper	998	13	75.4	+ 2.2	103	29	52	21	33	0.82	− 4.22	0.44	0	7	27	3	1	sw.	W. R. Vandike.
Belle Plaine	Benton	886	23	76.4	+ 3.6	102	29	50	22	38	0.36	− 4.05	0.14	0	3	16	13	2	sw.	O. C. Burrows.
Belmond	Wright	1,184	3	73.8	.....	99	16	49	21	35	2.60	.....	0.97	0	5	8	23	0	s.	Geo. P. Hardwick.
Bloomfield	Davis	881	6	79.9	.....	107	29	55	21	35	0.41	.....	0.22	0	3	29	0	2	nw.	Albert Power.
Bonaparte	Van Buren	.....	22	78.5	+ 3.0	106	29	53	21	34	0.52	− 3.21	0.47	0	2	.....	.....	.....	.....	B. R. Vale.
Boone	Boone	1,134	8	77.0	.....	104	29	52	21	37	1.99	.....	1.09	0	5	23	5	3	s.	C. F. Henning.
Boone	Hancock	1,236	16	73.0	+ 1.2	97	30	50	21†	32	4.26	− 0.17	1.95	0	7	24	5	2	s.	L. M. Goodman.
Britt	Des Moines	544	17	.....	.....	.....	.....	.....	.....	.....	0.18	− 3.44	0.12	0	3	25	1	5	sw.	Max. E. Poppe, jr.
Burlington	Des Moines	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carroll	Carroll	1,265	23	75.0	+ 2.0	98	29†	51	10†	36	2.70	− 1.31	1.15	0	5	27	2	2	nw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	733	31	78.0	+ 3.3	106	30	53	12	39	0.46	− 3.58	0.26	0	4	22	5	4	s.	R. S. Toogood.
Charles City	Floyd	1,015	22	72.5	− 1.0	100	30	50	21	33	2.81	− 0.77	1.04	0	11	8	17	6	se.	U. S. Weather Bureau.
Clear Lake	Cerro Gordo	1,241	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Oscar Stevens.
Clinton	Clinton	593	46	77.6	+ 3.8	106	30	51	11	36	1.79	− 2.41	0.74	0	7	19	11	1	sw.	A. E. Reid.
Columbus Junction	Louisa	595	12	78.2	+ 2.6	103	29	55	21†	30	0.34	− 3.67	0.22	0	3	28	3	0	sw.	J. B. Johnston.
Davenport	Scott	580	42	78.1	+ 2.7	102	29	54	11	33	0.18	− 3.37	0.10	0	4	19	9	3	sw.	U. S. Weather Bureau.
Decorah	Winneshiek	875	20	.....	.....	.....	.....	53	21†	.....	4.67	+ 0.95	1.45	0	9	.....	.....	.....	.....	F. H. Baker.
Delaware	Delaware	1,083	22	73.8	+ 1.9	100	30	51	11	34	1.40	− 2.75	0.62	0	4	16	14	1	se.	Nettie E. Ball.
Des Moines	Polk	861	35	78.2	+ 2.7	101	29	56	21	30	1.05	− 2.81	0.80	0	5	18	9	4	sw.	U. S. Weather Bureau.
Dubuque	Dubuque	639	40	75.0	+ 0.3	100	30	55	11	31	2.31	− 1.99	1.09	0	7	14	12	5	s.	Do.
Earlham	Madison	.....	11	76.6	+ 6.6	102	29	48	21	37	1.66	− 3.18	1.33	0	3	26	5	0	sw.	George Phillips.
Elkader	Clayton	727	34	.....	.....	.....	.....	.....	.....	.....	3.05	− 1.63	1.65	0	5	23	7	1	se.	Chas. Reinecke.
Elma	Howard	1,182	3	71.4	.....	97	30	47	20	34	3.93	.....	1.52	0	8	9	22	0	nw.	H. A. Moore.
Estherville	Emmet	1,298	18	72.0	+ 0.9	98	30	50	21†	35	3.65	− 0.93	1.25	0	8	16	15	0	s.	A. O. Peterson.
Fairfield	Jefferson	780	29	.....	.....	102	29	.....	.....	.....	0.06	− 3.93	0.06	0	1	25	0	6	sw.	R. M. McKenzie.
Fayette	Fayette	1,003	23	72.7	− 0.4	99	30	50	10†	34	3.43	− 0.66	1.64	0	7	28	2	1	nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	19	73.4	+ 1.4	98	29†	53	24	38	3.53	− 0.15	1.26	0	8	24	5	2	sw.	J. A. Peters.
Fort Dodge	Webster	1,126	13	76.0	+ 3.5	101	30	51	21	36	2.37	− 1.66	1.00	0	4	.....	.....	.....	sw.	J. F. Monk.
Fort Madison	Lee	516	64	.....	.....	.....	.....	.....	.....	.....	T.	− 3.96	T.	0	0	10	15	6	sw.	Miss L. A. McCready.
Gilman	Marshall	1,052	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. L. Wylie.
Grand Meadow	Clayton	1,180	22	71.4	+ 0.9	93	30	53	10	30	3.80	− 0.94	1.72	0	11	6	23	2	nw.	F. L. Williams.
Grinnell	Poweshiek	1,023	21	77.2	+ 4.0	105	29	53	21	37	0.47	− 4.48	0.33	0	3	26	3	2	sw.	D. W. Brainard.
Grundy Center	Grundy	976	22	76.6	+ 4.4	102	30	50	21	36	1.91	− 2.64	0.92	0	3	25	5	1	n.	J. B. Calderwood.
Guthrie Center	Guthrie	1,077	18	77.4	+ 4.0	104	16	50	21	35	1.71	− 3.11	0.90	0	4	23	6	2	sw.	D. G. Beardsley.
Hampton	Franklin	1,155	23	75.7	+ 3.3	101	29	54	21†	36	2.34	− 2.49	1.05	0	5	11	18	2	se.	E. C. Grenelle.
Humboldt	Humboldt	1,095	25	75.4	+ 2.5	101	30	46	10†	40	2.57	− 1.37	1.05	0	9	24	6	1	n.	J. P. Peterson.
Independence	Buchanan	921	49	75.0	+ 2.1	100	29†	51	21	33	1.84	− 2.75	0.65	0	5	25	4	2	se.	R. E. Dudley.
Indianola	Warren	969	22	78.2	+ 3.5	102	29	56	10†	30	0.09	− 4.17	0.05	0	2	16	5	10	sw.	Prof. J. L. Tilton.
Iowa City	Johnson	683	53	76.3	+ 2.1	102	16†	50	21	39	0.39	− 4.09	0.23	0	4	19	8	4	sw.	Prof. A. G. Smith.
Iowa Falls	Hardin	1,170	20	73.1	+ 1.1	98	30	47	21	36	2.07	− 2.03	0.87	0	4	26	0	5	sw.	J. B. Parmelee.
Jefferson	Greene	1,052	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ora M. Hall.
Keokuk	Lee	614	42	79.7	+ 2.7	102	29	58	25	28	0.09	− 3.94	0.04	0	4	19	10	2	s.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	21	78.6	+ 2.7	106	29	50	21†	42	0.06	− 4.07	0.05	0	3	12	17	2	.....	J. H. Landes.
Knoxville	Marion	920	18	78.7	+ 3.2	101	29	55	21	33	0.20	− 4.26	0.20	0	1	19	8	4	sw.	Casey and Belville.
Lacona	Warren	.....	14	.....	.....	.....	.....	.....	.....	.....	0.05	− 4.43	0.02	0	4	12	18	1	.....	J. B. Alter.
Lansing	Allamakee	632	8	72.9	.....	96	30	50	25	31	6.23	.....	1.70	0	9	23	1	7	w.	Chas. R. Serene.
Le Claire	Scott	576	13	.....	.....	.....	.....	.....	.....	.....	0.83	− 3.79	0.45	0	4	.....	.....	.....	.....	Miss M. T. Disney.
Marshalltown	Marshall	947	21	77.6	+ 4.4	104	29†	51	21	37	1.10	− 3.61	0.44	0	5	27	2	2	se.	Jacob Eige.
Mason City	Cerro Gordo	1,132	16	73.8	+ 2.3	99	30	48	10	38	2.61	− 1.45	1.12	0	7	22	9	0	e.	Dr. Roy Desart.
Monroe	Jasper	922	1	77.9	.....	104	29†	55	10†	34	0.31	.....	0.21	0	2	27	2	2	s.	J. A. Dibel.
Mount Pleasant	Henry	729	32	77.6	+ 2.0	101	29†	50	11	40	0.18	− 3.65	0.15	0	2	19	12	0	s.	J. W. Edwards.
Muscatine	Muscatine	554	53	.....	.....	.....	.....	.....	.....	.....	0.29	− 3.62	0.14	0	4	.....	.....	.....	.....	William Molis.
New Hampton	Chickasaw	1,169	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. F. Kemman.
Nora Springs	Floyd	1,064	....	74.8	.....	101	29†	50	21	38	3.34	.....	1.33	0	7	24	6	1	s.	Arthur Betts.
Northwood	Worth	1,122	17	70.4	− 0.8	95	30	51	24	31	2.96	− 0.06	1.58	0	7	.....	.....	.....	nw.	Chas. H. Dwelle.
Olin	Jones	760	15	.....	.....	100	29†	.....	.....	.....	1.15	− 2.82	0.50	0	4	18	13	0	sw.	Dr. F. W. Port.
Osage	Mitchell	1,184	26	73.0	+ 2.5	97	29	51	9	41	3.41	− 0.31	1.40	0	6	21	7	3	s.	Lester Coonradt.
Oskaloosa	Mahaska	843	37	77.8	+ 3.4	105	29	52	21	36	0.06	− 3.91	0.06	0	1	26	2	3	sw.	Joseph Boyd.
Ottumwa	Wapello	649	18	.....	.....	.....	.....	.....	.....	.....	T.	− 4.13	T.	0	0	24	5	2	se.	Chester Potter.
Pella	Marion	877	11	77.4	+ 1.4	108	29	48	20	38	0.25	− 4.11	0.19	0	2	28	3	0	s.	J. H. Ver Steeg.
Perry	Dallas	975	12	78.5	+ 3.9	105	29	52	10†	37	1.11	− 3.50	0.64	0	5	20	10	1	s.	S. J. Brumfield.
Pocahontas	Pocahontas	1,248	9	74.0	.....	101	30	49	10†	37	2.13	.....	0.90	0	6	27	3	1	s.	F. E. Hronek.
Rockwell City	Calhoun	.....	17	75.8	+ 2.4	99	29†	52	22	34	2.60	− 0.92	1.50	0	2	30	1	0	.....	C. M. Randall.
Sac City	Sac	1,278	37	75.1	+ 2.4	99	30	50	9	36	2.10	− 1.93	1.01	0	4	19	12	0	sw.	E. N. Baily.
St. Charles	Madison	1,070	12	77.9	+ 3.8	102	29	56	21	32	0.13	− 5.66	0.08	0	3	26	5	0	sw.	R. D. Minard.
Sigourney	Keokuk	877	17	78.2	+ 2.4	102	29	54	21	32	0.96	− 3.34	0.70	0	4	4	27	0	s.	J. T. Parker.
Stockport	Van Buren	745	11	77.6	.....	105	29	48	21	37	0.29	− 4.30	0.25	0	4	27	4	0	s.	C. L. Beswick.
Storm Lake	Buena Vista	1,440	24	75.6	+ 3.7	97	30	53	24	32	1.81	− 2.49	0.70	0	5	24	7	0	s.	Geo. H. Fracker.
Tipton	Cedar	807	14	79.2	+ 4.4	102	29	57	11	31	0.61	− 3.61	0.39	0	3	22	9	0	s.	F. K. Gregg.
Toledo	Tama	856	19	76.3	+ 2.7	102	29	50	21	36	0.54	− 3.52	0.32	0	2	29	2	0	se.	I. F. Giger.
Washington	Washington	769	31	77.9	+ 2.4	104	29	54	21	37	0.13	− 3.49	0.10	0	3	19	8	4	sw.	Wm. A. Cook.
Waterloo	Black Hawk	862	30	75.0	+ 1.5	99	30	54	10†	34	2.10	− 2.30	0.83	0	4	27	2	2	e.	Ralph B. Slippy.
Waukee	Dallas	1,039	10	76.8	+ 3.9	100	29†	52	21	33	2.41	− 3.96	1.20	0	3	30	0	1	sw.	Samuel F. Foft.
Wavely	Bremer	948	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Earl C. Moore.
Webster City	Hamilton	.....	8	76.4	+ 3.3	102	30	47	21	41	2.92	− 1.30	1.12	0	6	18	11	2	se.	C. D. Carpenter.
West Bend	Palo Alto	1,197	20	74.0	+ 1.9	98	29	50	10†	38	2.55	− 1.23	1.25	0	5	24	5	2	s.	Phil Dorweiler.
Whitten	Hardin	1,036	16	75.4	+ 2.1	99	30	51	21	32	2.38	− 1.96	1.18	0	4	24	6	1	se.	Dr. F. P. Butler.
Winterset	Madison	1,129	22	78.6	+ 4.6	102	29	53	21	33	0.63	− 5.05	0.60	0	2	24	4	3	s.	Dr. R. S. Cooper.
Missouri.																				
Gorin	Scotland	700	28	.....	.....	.....	.....	.....	.....	.....	0.22	− 4.37	0.13	0	2	15	12	4	sw.	J. W. Pulliam.
Hannibal	Marion	534	22	80.6	+ 3.2	102	17	58	22	30	0.27	− 3.48	0.12	0	5	16	11	4	sw.	U. S. Weather Bureau.
Louisiana	Pike	500	36	78.5	+ 2.5	100	16†	50	22	36	1.54	− 1.99	0.52	0	7	19	10	2	se.	J. T. Farrel.
Macon	Macon	881	1	80.7	.....	103	29	59	12†	32	1.30	.....	0.37	0	6	18	10	3	se.	John A. Cook.
Mexico	Audrain	797	36	81.2	+ 4.3	106	17	57	21	40	2.43	− 1.62	1.41	0	9	23	0	8	sw.	J. F. Llewellyn.
Palmyra	Marion	652	2	82.9	.....	105	29	60	31	40	0.35	.....	0.21	0	4	18	10	3	sw.	W. B. Markell.
Steffenville	Lewis	576	21	82.5	+ 5.8	107	29	55	21†	40	0.15	− 4.94	0.15	0	1	19	11	1	sw.	Frank Hall.
Sublett	Adair	1,000	34	79.2	+ 3.4	102	30	48	17	50	2.50	− 1.89	2.00	0	2	16[a]	13[a]	1[a]	sw.	Lewis Spriggs.
Vandalia	Audrain	776	3	82.4	.....	105	29	59	21	30	1.27	.....	0.63	0	4	22	5	4	s.	C. B. Ellis.
Warrenton	Warren	865	24	80.2	+ 2.9	104	18	58	21†	33	3.87	− 0.14	0.94	0	9	12	10	9	s.	Prof. J. H. Frick.

TABLE 1.—*Climatological data for July, 1913. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Indiana.																				
Collegeville	Jasper	.....	14	76.2	+ 2.3	105	30	45	25	42	3.52	− 0.81	1.44	0	3	10	20	1	sw.	Otto Miller.
Knox	Starke	716	8	73.8	.....	94	30	49	25	32	4.33	.....	1.03	0	11	20	10	1	s.	W. R. R. Tatman.
Laporte	Laporte	810	17	72.4	− 1.3	96	30	46	26	41	3.76	+ 0.36	1.31	0	6	20	8	3	sw.	Wm. M. Walton, jr.
Plymouth	Marshall	790	10	72.4	.....	93	30	48	22†	33	4.29	.....	0.99	0	11	18	12	1	sw.	J. W. Siders.
South Bend	St. Joseph	726	20	74.4	+ 1.0	96	30	49	25	33	3.10	− 0.37	0.88	0	9	15	15	1	nw.	Henry H. Swaim.
Illinois.																				
Aledo	Mercer	738	13	78.0	+ 3.6	103	29	54	11†	33	0.10	− 2.47	0.05	0	3	5	25	1	nw.	William B. Frew.
Alexander	Morgan	670	20	78.8	+ 2.5	104	29	51	21	36	1.08	− 2.50	0.42	0	4	16	14	1	w.	George H. Hall.
Antioch	Lake	861	12	72.6	+ 0.2	98	30	42	11	40	3.45	− 0.34	1.00	0	7	17	10	4	sw.	J. C. James.
Astoria	Fulton	650	14	77.4	+ 3.2	102	30	50	21†	39	0.42	− 2.76	0.22	0	4	19	10	2	s.	Edward V. Bohl.
Aurora	Kane	678	34	74.0	+ 0.9	98	29†	47	11†	38	3.58	+ 0.09	1.60	0	6	26	3	2	s.	Miss Alice Holden.
Beardstown	Cass	448	.....	.....	.....	.....	.....	.....	.....	.....	0.43	− 2.84	0.23	0	.....	.....	.....	.....	.....	Mrs. L. M. Rice.
Bement	Piatt	700	6	.....	.....	.....	.....	.....	.....	.....	0.37	.....	0.28	0	3	21	10	0	nw.	Eugene Evans.
Bloomington	McLean	840	22	78.0	+ 2.8	107	30	48	25	42	1.27	− 2.44	0.78	0	4	27	1	3	s.	Prof. H. N. Pearce.
Cairo	Alexander	359	41	80.4	+ 1.8	99	18	65	22	27	4.19	+ 0.74	2.56	0	9	17	7	7	sw.	U. S. Weather Bureau.
Camp Point	Adams	732	0	.....	.....	.....	.....	.....	.....	.....	1.36	.....	0.89	0	6	14	16	1	sw.	Capt. D. M. Morris.
Carbondale	Jackson	412	8	80.6	.....	104	18	52	22	41	3.35	.....	1.64	0	10	22	8	1	sw.	State Normal University.
Carlinville	Macoupin	663	23	80.8	+ 4.1	105	17†	52	22	38	1.84	− 1.93	0.66	0	6	12	14	5	sw.	Dr. J. D. Conley.
Carlyle	Clinton	470	28	.....	.....	.....	.....	.....	.....	.....	0.89	− 2.85	0.35	0	4	.....	.....	.....	.....	Harvey O. Jones.
Chester	Randolph	380	21	.....	.....	.....	.....	.....	.....	.....	3.33	− 1.12	1.16	0	.....	.....	.....	.....	.....	Charles S. Gollon.
Clinton	De Witt	727	3	78.3	.....	104	30	49	25	39	2.02	.....	1.23	0	7	22	6	3	sw.	J. Frank Ziegler.
Cobden	Union	656	30	81.1	+ 2.4	102	5	56	21†	37	3.77	− 0.49	1.45	0	7	15	15	1	sw.	John Buck.
Dakota	Stephenson	929	8	73.5	.....	102	30	46	11	36	4.50	.....	1.08	0	11	9	21	1	sw.	Elmer G. Smith.
Decatur	Macon	685	22	79.4	+ 3.5	105	30	53	21	37	1.40	− 1.83	1.20	0	7	27	0	4	sw.	Prof. J. H. Coonradt.
Dixon	Lee	725	23	76.8	+ 2.6	102	30	50	25	37	1.47	− 2.32	0.60	0	6	24	2	5	.....	H. U. Bardwell.
Du Quoin	Perry	459	25	80.6	+ 2.2	104	18	52	22	41	3.25	− 1.02	0.92	0	9	20	11	0	sw.	G. H. Knetzger.
Dwight	Livingston	600	20	77.0	+ 1.6	106	30	47	25	40	1.61	− 1.54	1.18	0	6	18	9	4	sw.	Edward O. Welsh.
East St Louis	St. Clair	481	2	.....	.....	.....	.....	.....	.....	.....	3.62	.....	1.84	0	7	.....	.....	.....	.....	W. McK. Brown.
Edwardsville	Madison	554	14	.....	.....	.....	.....	.....	.....	.....	3.95	+ 0.55	1.52	0	8	.....	.....	.....	.....	W. H. Morgan.
Elgin	Kane	716	6	74.6	.....	98	30	47	11	37	.....	.....	.....	0	7	11	18	2	nw.	Elgin Observatory.
Ewing	Franklin	449	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ewing College.
Fairview	Fulton	733	2	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.10	0	1	.....	.....	.....	.....	Abram Wilson.
Galva	Henry	842	21	77.6	+ 3.0	105	30	51	11	39	0.66	− 3.00	0.63	0	2	24	5	2	sw.	Prof. F. U. White.
Grafton	Jersey	422	20	.....	.....	.....	.....	.....	.....	.....	1.92	− 1.98	1.10	0	.....	.....	.....	.....	.....	R. C. Goodrich.
Greenville	Bond	635	35	80.2	+ 2.7	103	18†	56	21†	40	1.86	− 1.75	0.70	0	8	27	3	1	sw.	H. W. Riedemann.
Griggsville	Pike	650	28	80.1	+ 3.4	104	29	56	21	32	0.64	− 2.68	0.28	0	5	21	8	2	sw.	G. F. Kneeland.
Havana	Mason	475	21	79.6	+ 2.2	104	17	51	25	39	1.46	− 2.50	0.90	0	5	22	6	3	s.	L. L. Eutenener.
Henry	Marshall	500	25	78.0[a]	+ 3.3	104	29†	49[a]	25	36[c]	0.51	− 3.00	0.30	0	4	22	5	4	s.	Dr. F. A. Powell.
Hillsboro	Montgomery	675	19	80.7	+ 3.9	105	30	55	21	36	1.96	− 1.83	0.98	0	5	.....	.....	.....	.....	Ira L. Woodward.
Joliet	Will	609	22	74.6	+ 0.8	101	29†	45	7†	43	3.48	+ 0.06	1.75	0	9	22	8	1	sw.	F. M. Muhlig.
Kishwaukee	Winnebago	730	25	73.6	+ 0.4	100	30	45	11	38	4.77	+ 1.19	1.06	0	14	21	10	0	sw.	George Stevens.
La Grange	Cook	657	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. F. E. Sanford.
La Harpe	Hancock	698	34	78.0	+ 1.6	107	30	50	21	40	0.23	− 4.22	0.14	0	3	26	5	0	sw.	George E. Campbell.
Lanark	Carroll	883	24	74.4	+ 1.7	103	30	46	11†	38	2.08	− 2.02	0.55	0	10	27	4	0	sw.	M. N. Wertz.
La Salle	La Salle	536	8	76.8	+ 1.5	103	30	49	11	39	1.42	− 1.85	0.91	0	7	13	16	2	sw.	U. S. Weather Bureau.
Lincoln	Logan	575	25	79.2	+ 3.2	104	30	48	25	39	1.01	− 1.96	0.55	0	5	16	14	1	s.	Prof. C. S. Oglevee.
Macomb	McDonough	700	9	.....	.....	.....	.....	.....	.....	.....	0.16	.....	0.14	0	2	.....	.....	.....	.....	State Normal University.
Manteno	Kankakee	711	2	.....	.....	.....	.....	.....	.....	.....	2.91	.....	1.63	0	5	24	5	2	sw.	J. F. Schmetzer.
Martinton	Iroquois	633	26	77.2	+ 2.9	105	29	44	25	43	2.19	− 1.07	0.80	0	5	18	9	4	.....	Joseph H. Feltier.
Mascoutah	St. Clair	425	23	81.3[d]	+ 3.1	102[c]	31	60[d]	22	32[d]	2.13	− 1.25	0.58	0	8	16	14	1	s.	Dr. R. F. Lischer.
Minonk	Woodford	745	20	77.6	+ 2.5	106	29†	48	25	41	1.95	− 1.03	1.10	0	7	21	8	2	sw.	John C. Danforth.
Monmouth	Warren	784	21	78.6	+ 3.6	106[a]	30	52	21	37[a]	0.05	− 4.04	0.05	0	1	22	4	5	w.	Dr. J. C. Hutchison.
Morris	Grundy	518	2	76.6	.....	104	30	48	24	39	2.79	.....	1.03	0	7	19	11	1	sw.	E. G. Cryder.
Morrison	Whiteside	685	19	76.2	+ 2.7	106	30	49	11†	39	1.59	− 3.02	0.50	0	8	23	7	1	sw.	S. A. Maxwell.
Morrisonville	Christian	626	14	78.5	+ 2.9	101	29	54	25	32	3.60	− 0.24	2.84	0	4	18	11	2	sw.	J. D. Lowis.
Mount Vernon	Jefferson	511	19	80.3	+ 2.4	103	18	56	22	35	1.44	− 2.57	0.51	0	5	20	5	6	s.	Theodore P. Stelle.
Nashville	Washington	503	13	.....	.....	.....	.....	.....	.....	.....	1.32	− 3.02	0.50	0	10	.....	.....	.....	.....	H. M. Potter.
Oregon	Ogle	702	4	74.5	.....	101	30	45	11	40	2.96	.....	0.95	0	5	19	10	2	s.	Samuel Ray.
Ottawa	La Salle	500	27	77.6	+ 2.3	108	30	49	11	39	2.17	− 1.54	1.00	0	7	17	3	11	sw.	Miss Maude Harris.
Pana	Christian	692	27	78.4	+ 2.0	102	30	55	25	32	1.48	− 2.34	0.57	0	3	23	4	4	.....	Dr. G. N. Gilbert.
Paw Paw	Lee	930	1	.....	.....	.....	.....	.....	.....	.....	2.72	.....	1.36	0	8	.....	.....	.....	.....	A. C. McBride.
Peoria	Peoria	609	57	78.5	+ 3.1	103	29	52	21	36	0.46	− 2.51	0.28	0	6	18	11	2	s.	U. S. Weather Bureau.
Pontiac	Livingston	546	11	78.4	+ 3.0	106	30	51	11†	42	1.13	− 1.96	0.56	0	5	10	17	4	sw.	George Butterworth.
Quincy	Adams	481	7	81.8	.....	105	29	61	21	30	0.79	.....	0.36	0	6	.....	.....	.....	.....	Fred J. Brinkoetter.
Riley	McHenry	956	54	72.7[a]	+ 1.0	96[a]	29	48[a]	11	34[a]	6.55	+ 3.01	2.55	0	12	15	14	2	sw.	John West James.
Roberts	Ford	774	2	.....	.....	.....	.....	.....	.....	.....	1.66	.....	0.71	0	5	24	6	1	sw.	R. E. Bradbury.
Rockford	Winnebago	763	21	74.3	+ 0.5	101	30	48	11	35	5.85	+ 2.13	2.65	0	10	25	3	3	.....	Dr. John R. Porter.
Rushville	Schuyler	670	22	79.6	+ 3.7	102	17†	57	21	31	0.58	− 3.14	0.48	0	4	27	4	0	sw.	H. F. Dyson.
St. Charles	Kane	700	18	74.6	+ 0.9	101	29	48	11	38	4.33	+ 0.59	2.20	0	9	20	11	0	sw.	Dr. Wm. H. Bishop.
St. Peter	Fayette	500	11	80.2	+ 2.4	103	17†	55	22†	35	2.43	− 1.70	1.07	0	6	10	19	2	sw.	M. L. Lansford.
Sparta	Randolph	538	27	80.6	+ 3.2	101	16†	54	22	37	3.32	− 0.12	1.23	0	6	23	7	1	nw.	James A. Caldwell.
Springfield	Sangamon	644	33	80.0	+ 3.5	103	29	56	25	34	1.66	− 1.24	1.32	0	6	15	13	3	sw.	U. S. Weather Bureau.
Streator	La Salle	626	20	78.0	+ 2.9	108	30	49	11†	43	1.59	− 2.06	0.79	0	6	24	4	3	sw.	Miss Lora Sweetser.
Sullivan	Moultrie	530	13	81.1	+ 4.8	106	30	52	25	39	0.30	− 2.26	0.12	0	5	21	10	0	sw.	C. A. Corbin.
Sycamore	De Kalb	855	33	74.2	+ 2.0	101	30	41	25	42	4.09	+ 0.42	1.91	0	8	24	6	1	.....	George E. Valentine.
Tiskilwa	Bureau	798	29	.....	.....	.....	.....	.....	.....	.....	0.34	− 3.55	0.10	0	5	.....	.....	.....	.....	F. I. Smueker.
Walnut	.....do	717	22	77.3	+ 1.7	105	30	49	11	40	1.27	− 2.52	0.57	0	7	19	11	1	s.	O. C. Nussle.
Warsaw	Hancock	501	15	.....	.....	.....	.....	.....	.....	.....	0.11	− 4.43	0.11	0	1	.....	.....	.....	.....	W. R. Kirkbride.
Waterloo	Monroe	719	2	.....	.....	.....	.....	.....	.....	.....	3.74	.....	0.90	0	7	.....	.....	.....	.....	Prof. J. E. Raibourn.
White Hall	Greene	573	5	80.2	.....	108	17	52	22	39	1.26	.....	0.38	0	6	24	6	1	sw.	Frank Dillman.
Windsor	Shelby	681	14	80.2	+ 4.3	108	30	50[a]	21	39[a]	0.92	− 3.10	0.71	0	3	12	17	2	sw.	Herbert Rose.
Winnebago	Winnebago	900	26	74.9	+ 1.9	103	30	46	11	38	4.89	+ 1.06	1.84	0	11	25	3	3	sw.	Frank Osborn.
Yorkville	Kendall	584	26	74.8	+ 1.8	101	29	45	11†	42	3.42	− 0.09	0.95	0	7	25	5	1	w.	Herman A. Grimwood.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 5, Upper Mississippi Valley.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota.																																	
Amenia	Red			T.		.48						.62	.13	.21	.26		.10						.40								.38		2.58
Bottineau	Mouse			.01		.04	.14				T.	.72	.11	.02		.09	.22						.02				.01	.04			.13		1.55
Bowbells	do			.13		.44						.13	.15	.27		.10	.82						.05								.03		2.12
Cando	Sheyenne		.39		.20	.03						.40	T.	.05		.02	2.00										T.		.08				3.17
Crosby	Mouse		T.		.64	T.						.10	.18			T.	.46														T.		1.38
Devils Lake	Sheyenne	.01	.07		.37	.13		.01				.15	T.	.03		.13	T.	.09	.13			.34					.01						1.47
Donnybrook	Mouse		.34		.51							.33	.06			.14	.15					.15					T.			.13			1.81
Dunseith	do		T.		.01	.09						.93	.04	.07			.01	1.69					.01								T.		2.85
Fessenden	James			.20	T.	.30							.32	.02	T.	.32		.18	.22	T.			.07								.03		1.66
Forman	Sheyenne		.25		.90				T.		.50	.15				T.	.25												T.		.40		2.45
Grafton	Red			.11		.18						.82		.02	.07		.03		.64				.15										2.02
Hannah	Pembina				.16			T.			.48		.03						.51												.27		1.45
Hansboro	Red	.05	.01		.02						.54	.08	.12		.01	.01	.40											.04		.20			1.48
Hillsboro	do		.07	.02	.04	.54	.01				.14	.15	.02		.07		1.08	T.					.08				T.		T.				2.22
Lakota	Sheyenne	T.	.18	.03	.32	T.		T.			.32	.02	.10		.04	T.	.04	.05		T.		.67		T.		T.			T.				1.77
Langdon	Pembina			.18		.44						.27	T.	.02			.69			.06			.22								T.		1.88
Larimore	Red			.26		.20						1.18	.03	.01	.18		.24		.08				.12							.04			2.34
Lisbon	Sheyenne			.25	T.	.93						.45	.05		T.		.25	T.	.02				T.							.08	.10		2.13
Mouse	Mouse			.10	.75	T.						.40					1.90				T.	T.											3.15
McKinney	Sheyenne		.23		1.79						.40	.44					.13						.98							.16	.70		4.83
McLeod	do		.26		.34						.30	.05	T.		.16		.30	.18				.08											1.67
Manfred	Red		.04	.06		.45					.13	.32			.37		.84	.13		.04			.18							.03			2.59
Mayville	Mouse	T.	T.	.09		.39					.02	.76	T.		.14	.03	.19						T.								.38		2.00
Minot	Red		.19		.25						.95	.03	.05		.08		.12	.65				.13	.03						.10				2.58
Oriska	Sheyenne	.08	.10	T.	.08	.01	.11				.63				.21		.15	.02					.32				T.		.06				1.77
Park River	Red		.10	.06	.20	.05					1.05	.02	.01		.07		.08	.07		.02		T.	.02								.02		1.77
Pembina	do			.04		.10	T.		.10			.60	.10	T.	T.		T.			.01								T.		T.			0.95
Power	Sheyenne		.17	1.50							*	.70			.10		.13	T.					1.12						T.	T.			3.72
Towner	Mouse		.09		.06	.02					.67	T.	.05		.07	T.	.35					.83	.02										2.16
University	Red		.07	.09	.28	.01					.34	.75	.12		.18		.16	.07		.02		.41	.03				T.		.06	.27			2.86
Wahpeton	do			.86	2.00							.21	.08				.45		.02				.79					.02					4.43
Westhope	Mouse		.15		.11						.50	.03	.05				.16					.05					.02				.06		1.13
Willow City	do				.04	.01					.70	.11	.04		.04	.03	.44					.05											1.46
Minnesota.																																	
Albert Lea	Mississippi					.70					.20	.90											T.	.22					1.10		.05		3.17
Alexandria ‖	do			.82	1.40	.87						.16	.66	T.	T.		1.86		T.				.03	.04			.14			T.			5.98
Angus	Red		.15		.63	.03		T.			.48	1.33	.04		.08		.27	.06		.03		.03	.09					T.	.09	.20			3.51
Bagley	do		.15		.95							2.50			.50		.15	.09				2.27					.23						6.84
Baudette	Rainy	T.	T.	.01		.90		.02	T.			.58	1.28	.06			1.27					.20						.16	.07	.02	.13		4.70
Beardsley	Minnesota			.22	.04	T.			T.		T.	.42			.10	.04	1.00	.13	T.	T.			.32			T.	T.		T.				2.27
Bemidji ‖	Mississippi		.15			1.25	.11	.12				.32	1.28	.15		.03		.15		.08	.18	.63	.61				.56			.09	.08		5.79
Bird Island	Minnesota	.04		.53	1.03	.96						1.31			.21		.27	.18					.30			.12				.05	.07	.37	5.44
Brainerd	Mississippi			.31	1.84	.32						1.06	.25			.05	.45						.57				.79	.62		.02		.47	6.75
Caledonia ‖	do		.12		1.25	1.70							1.49		1.65		.10							.70					T.	1.49		.43	8.93
Campbell ‖	Red			.85	.05	1.20						.20	.40		T.		.63						.70					.17					4.20
Cass Lake ‖	Mississippi		.21	T.		1.01	.08		.06			.31	1.72	.18	.14		.43		T.	T.			1.29				.10	.41	.08		.08		6.10
Collegeville	do			3.09	2.11	1.70						1.95				2.39	1.25	.11					.29				.84	.07	.08	1.00	T.	.28	15.16
Crookston ‖	Red			.16		.33						.55	1.63	.21	.30		.80		T.	T.			.24					.30		.08			4.60
Detroit ‖	do			.30	T.	1.80						1.00	.50	.08	T.		.25		.08				.10				.15	.05		T.	.20		4.51
Fairmont (near)	Minnesota	.51			.57							.89						T.				.24			.21	.01		.04			.35		2.82
Farmington	do	.34		.58	1.42	1.56			.02			.60	.10			T.	.03	.02			T.		.09				T.	.10		1.10	.06	.08	6.21
Fergus Falls	Red		1.00	.01	3.23	.01						.91	.08		.02	T.	.60		.15				.43				.03		.02		T.		6.49
Fort Ripley ‖	Mississippi			.33	.24	1.40						.17	2.13				.65						.32				.60					.42	6.26
Fosston	Red		.03	.07	.21	.03						.82	.71		.17		.14	.04		.02		.17	.28				.27			.04	.02		3.02
Glencoe	Mississippi				2.50							1.25			.25		1.00													.25		.15	5.40
Grand Meadow	do	.03			.15	.53			.10			1.52			T.	T.	T.	.03			.05		.03	.33		.03	T.	T.		1.83		T.	4.63
Gull Lake Dam	do			.25	.48	.66						1.26	.40		.01	.28	.48			.02	.09		.70				.65	.86		.01		.05	6.20
Hallock	Red		.01	.02	.15	.03	.01	.10			1.10	.40	.01					.40				.01					.05						2.29
Halstad ‖	do			.18		.36	.01					.50	.04	.04	.06		.47						.24							.10			2.00
Hinckley	St. Croix			.70	.57	1.44						2.00	.08			.23	.72			.20			.12				.45		T.	.51		.17	7.19
International Falls	Rainy					1.76			.48			1.50					1.30			.12		.05								T.	T.		5.21
Itasca State Park	Mississippi		.07	.02	.94	.54						1.90	.44	.02		.01	.17			.01		.17	.72				.02	.04	.01	.25	.87		6.20
Lake Crystal	Minnesota			.26	.60	.52						.73					.11							.12		.13				1.52		.59	4.58
Leech Lake Dam	Mississippi			.21	.34	1.52		.13				2.58	.22	.12		.17	.22			.10			.97				.19	.53		.01			7.31
Littlefork	Rainy	.01		.09		1.35	.01		.05			.78	.32			.15	1.00	.02		.02						.04			.03				3.87
Long Prairie	Mississippi			1.30	1.15	1.15						1.83				.10	.93								.25	.20							6.91
Lynd	Minnesota	.23			.70	1.92						1.01						.47		.04		T.			.40				.35		.06		5.18
Mankato ‖	do		.31	.17	.61	.41						.21	.63			.02	.03	.02	.02					.03			.14	.07		1.53	.05	.36	4.61
Malaca	Mississippi			.76	1.23	1.03							1.25				1.17			T.			.46				.80	.30	.03	1.50		.33	8.68
Milan	Minnesota			.95	1.04							.65			T.	T.	.70	.56		T.			.32			.05	.14		1.21				5.62
Minneapolis	Mississippi	T.	.82	.61	1.50	.02			T.			1.70			.09	1.33	.78	.03		T.			.03			.02		.11	.32		.01	.38	7.75
Montevideo ‖	Minnesota		T.	T.	2.85	.72				T.		.18	.64				.88	.05	.51					.46			.12	T.		.04			6.45
Moorhead	Red		.08		1.06	.02					.01	.22			.01		.14			.01		.58	.14				T.			.83	.07		3.26
Mora	St. Croix			.60	.52	1.10			.01			2.38	T.		T.	.24	.77	T.		T.			.35				.57	.22	T.	.60		.20	7.56
Morris	Minnesota	T.	.70	.20	.17							.90			.03	2.31	1.36	.06					.10			T.							5.83
New London	Mississippi		.22	.60	1.65							1.32			.06	.24	2.15						.03			T.	.11	1.52			.30	.42	8.62
New Richland	Minnesota	.21			.45	1.68						1.23					T.						.19			T.				1.02		.06	4.84
New Ulm ‖	do		.02	.16	1.56	.30						.54	.48			.04	.07	T.	T.					.04		.20		.54		.77	.07	.15	4.94
Osakis	Mississippi			1.04	.46	.81						1.12	T.		T.	.08	.89	.04					.06				.08		T.		T.		4.58
Park Rapids ‖	do			.35		2.80						.32	.88	.15	.01		.64	.01	.05		.03		.48	.01			.26	.13		.03	.34		6.49
Pierz	do			.70	.40	1.72							.12			.09	.80						.65				.75					.55	5.78
Pine River Dam	do			.61	.24	2.88						1.42	.15			.63	.70						.25				.60	.40				.20	8.08
Pokegama Falls	do			.17	.09	1.54		.09	.04			1.60	.93	.21		1.10				.08			.76				.73	.42			.19		7.95
Red Lake	Red				.65			.17													1.25	1.60										3.67
Red Wing ‖	Mississippi		.06	.16	.66	1.52							.62		.04	.02	T.	.04	T.		T.			.06			.22	.02		.86		T.	4.28
Reeds Landing ‖	do		.10	.23	2.00	1.10							.86		.10	.55	.05						.10				.06			1.40			6.55
Rochester ‖	do		T.		1.40	.75							.92		1.15								.11				.15			.62			5.10
Roseau	Red			.10	.10	.36		.75	.02			.57	.39	.27			.05	.02		.07	.02	.25						.57		.02			3.56
St. Charles	Mississippi					.90			.09			1.47			.24								T.	.10		T.	.04		1.67				4.51
St. Cloud	do			1.84	1.04	1.03						1.11	.04			1.17	1.02	.12					.10							1.81		.21	9.49
St. Paul	do	T.	.47	.49	1.69	.02			T.			.85	T.	T.	.13	.72	.91	.02					.03			.01		.08	.38		.08	.23	6.11
St. Peter	Minnesota	.10		.15	1.25	.60						.80	.10		.20								.10			.05		.08		1.40		.25	5.08
Sandy Lake Dam	Mississippi			.39	.42	.91						1.62	.31				.36	.46		.13			.20				.84	.04				.29	5.97
State Sanatorium	do			.40	1.23							2.10	.40	.17	1.00		.35						.62				.33				.09		6.69
Stillwater ‖	St. Croix		T.	1.82	.60	1.68						.02	.46		.07	.16	1.94	T.	.04					.08			.06			.51	.03	T.	7.47
Taylors Falls	do			2.00	.69	1.55						1.00				.22	.65	.10					.20				.35			1.04		.18	7.98
Thief River Falls ‖	Red		.19		.65		.04				.45	.28			.11		.75					T.	.42							.02			2.91
Tracy	Minnesota	T.		.17	1.25	1.04						1.29			.02		.10	.13					T.			.67		T.		.70	T.	.25	5.62
Warren	Red		.14	.09	.15	.31					.15	.97						.21				.04					.04		.06				2.16

TABLE 2.—*Daily precipitation for July, 1913. District No. 5*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
***Minnesota*—Contd.**																																	
Warroad	Rainy		.02		.85			.20	.03		.95	1.31	.10			.10	.16	.10	.11	.12		.20				.02				.02		4.29
Winnebago ‖	Minnesota		.34			.71						.30	.50					T.	T.	T.			.12	.01		T.	T.		.80		.15	2.93
Winnibigoshish	Mississippi		.18			1.55		.05				1.92	.58	.35	.08	.82	.68				.10		.65				.04	.52		.08		7.60
Winona	do				1.44	1.86			T.			1.01						T.			.09	.12	.48		T.	T.	T.		1.10		.05	6.15
Worthington ‖	Des Moines				.05	.18						.80	.13				.04		.04	.02			.18		.24	.20					.46	2.34
Zumbrota	Mississippi	.06	.07	.25	.41	.47						1.00	T.		.40	T.	T.						.03			T.	.03	T.		1.00		.03	3.75
South Dakota.																																	
Milbank ‖	Minnesota		T.	T.	.04	.50						.18	.39				1.20	.02	.50				.25		T.	T.	T.		.03			3.11
Sisseton ‖	do			.30	.05		.30					.22	.14	.92	.02	1.02	.06				.20											3.23
Wisconsin.																																	
Antigo ‖	Wisconsin		.64		.15	1.00				.91		T.	1.18	.10				.68			.15		.42				2.84		.27			8.34
Barron	Chippewa	T.		1.59	.88	2.04						.81				.50	.93	.50		.01		.40				.18			.80		.09	8.73
Beloit	Rock					.72			1.53			T.	.16		1.95	.27	.22		.10	.05			.33						.07		.26	5.66
Big St. Germain Dam	Wisconsin			1.19	.22	1.03			.48			.09	1.37	.17			.30			.23			.15			.33	.62		.41			6.59
Brodhead	Rock					.91			3.90			.11	.57		1.78	.12	1.11		.05				.55						.25		.38	9.73
Burnett	do				T.	.07			.33			.04	.67	T.	.90	T.	.18	.02		.25	.02		.72						.39		.97	4.56
Cornell	Chippewa	.30		.66	*	2.85			.42			.57	.04			.24	.98	.02		.25		.05				.40			.43			7.21
Cottage Grove	Rock	.10			T.	.12			1.45			.15	1.08		1.18	.53	1.91		.03		.02		1.26						.41		.16	8.40
Darlington	do									1.25		.20	.60		.75		2.25						.85								.20	6.10
Deerskin Dam	Wisconsin	.04		.92	.90	.50			.35			T.	.90	.25			.20	T.		T.		.30				.38	.37		.55		T.	5.66
Delavan	Rock			.10					*	1.37		.07	.29		*	1.36	1.49		.04	T.			.34						.16		.44	5.66
Downing	Chippewa	T.		1.35	1.42	1.62						2.00	T.	T.	.10	1.10	.68	T.				T.				.05		T.	.20		.20	8.72
Eau Claire	do	.03	T.	.64	.65	.97			.12			.74	.02	.12	.16	1.39	.05	.03		.02		.06	.03			.24			1.26		T.	6.53
Glen Flora	do	1.04		2.47	.50	1.48			.54			.33	.11			.14	1.22	.08		.36		T.				.46	.15		1.03			9.91
Grand Rapids ‖	Wisconsin	.13	.72	.05	.06	.45	T.			.58			1.00		.03	.08	.31	T.	T.		.17		.25						.75		T.	4.58
Grantsburg	St. Croix			1.00	.33	1.00						1.25					1.50	.25		.27		.20				.25			1.25		.50	7.80
Hancock	Wisconsin		.40			.25			.47			T.	.75		.50		.60			.20			.95				.21		1.00		T.	5.33
Hatfield	Black	.26		.25	.42				.29			1.50		.06	.14	1.74						.10				.08			1.14		.28	6.26
Hayward	St. Croix			.07	.06	1.21			.50																			.67			.02	
Hillsboro	Wisconsin				.15	.40			.25			1.21		T.	1.53	.90	.26			T.			.65		T.				1.56		T.	6.91
Koepenick	do	.40		.40	.31	1.40			.77			1.00		.23		.14	.50	.11			.21		.12				.42	3.34		.30		.11	9.76
La Crosse	Mississippi	T.		.06	1.39	1.02						1.34		.20	.08	.02		T.	T.	.05			.21	.04		T.		.01	.60	.53		.16	5.71
Lake Mills	Rock				.03	T.			1.54			.02	.56	T.	2.38	.90	.64	T.	.04	.02				.82						.34		.88	8.17
Lancaster	Mississippi					.32			.27			.22	.05		.25																		
Long Lake	Wisconsin	.09	.43	.74	1.03	.72			.46				.71	.13			.46			.08			.58	.02			.17	.33			.33	.07	6.35
Madison	Rock					.43			1.25			.72		1.19	.24	2.40	.07	.01		.01		.01	1.14				.13		.45		.42	8.47
Marshfield	Wisconsin		.04	.14	.13	.31			.70				.81	T.	.02	.11	.04	T.		.20		.07	.03			.20			.60		.10	3.50
Mather ‖	do		1.38	T.	.12	.36				.64			1.23		.12	.37	2.04				.02		.54					T.	1.44	T.	.08	8.34
Mauston	do					.26			.90			.35	.50		1.90		1.10						.75						1.30			7.06
Meadow Valley	do	1.00		.03	.09	.36			.45			.80	.35	T.	.13	.80	.19	T.		.16		.06	.30			T.			1.10		.15	5.97
Medford ‖	Black		.82	.40	.83	1.15				.73			1.55				.14				.60		.68				1.15		.28		.18	8.51
Merrill ‖	Wisconsin		.63	.25	.50	.80				.96			.97	.09			.08	.83			.33		.13				2.13		.30		.06	8.06
Minocqua	do			.94	.30	1.05			.44			.20	1.05	.14			.55			.04			.25				1.02		.42			6.60
Mondovi	Mississippi	.02	.03	.76	1.82	.95			.01			1.25	.02	.02	1.76	.93	.01		T.	.01			.08	.03			29		1.26			9.25
Mount Horeb	Rock				.03	.52			3.50			.17	.25		2.10	.22	.99			.10				1.23				T.		.55		.13	9.79
Muscoda ‖	Wisconsin	.87				1.42				.41			1.60		.61		.21		T.		.05			1.44						.70			7.31
Neillsville	Black		.50	.50		.78			.55			.73				1.70				.36						30			1.00		.50	6.92
New Richmond	St. Croix	.20	.01	1.51	1.22	1.42						.62	.02	.06	.07	1.81	.67	.06		.02		.07								.50	.29	8.55
Osceola	St. Croix		1.00	1.16	1.70			T.				1.05			T.	.65	.60	.10		T.										T.	.45	7.66
Park Falls ‖	Chippewa			.95	.64	1.37	.04		.52	.58	T.		.53	.20			T.	.52	T.		.08		T.			.86	.07		.61			6.97
Portage ‖	Wisconsin	.07				.20				1.02			1.05		.51	.68	.72				.31		.74	.03	T.		T.		1.28		T.	6.61
Port Edwards	do	.06	.60		.10	.24			.60			.25	.70		.33		.18			.04			.64						.85		.04	4.63
Prairie du Chien ‖	Mississippi	T.		T.		.26				.08			1.20		.08		.56		.36				1.52						.06			4.12
Prairie du Sac	Wisconsin					.49			2.58	.01		.12	.63		.63	.64	2.12				.07		1.28						.94		.04	9.55
Prentice ‖	Chippewa		.42	.51	1.52	1.07			.04	1.16			.90	.11			.03	1.10	.04		.41		T.			T.	3.09		.41			10.81
Rest Lake	do			2.00	.47	1.28			.50			T.	1.22	.26			.42					T.				46	.79		.44			7.84
Rhinelander	Wisconsin		.06	.60	.38	.83			.16	.32			.70	.12			.65			.17			.14				1.95		.35	.04		6.47
Shullsburg	Mississippi				.34	.24			.89			.61	.43		.47	.59			.50				.43									4.72
Solon Springs	St. Croix			.55	.30	1.40			.15			.50	.20			1.30	.95			.10		T.	T.				T.	.20		.45			6.10
Spooner	do			1.60	1.52	1.58		T.				.76	.15			.15	.64	.04		.08		.15				.70			.54		.32	8.23
Stanley	Chippewa	.32		.80	.13	.10			.20			.40	.34		T.	.20	.41	.02		.22		T.			T.	1.16			.46	T.		4.76
Stevens Point	Wisconsin					.45			.85				.97				.51												1.00			3.78
Sugar Camp Dam	do			.75	.60	.81			.43			.76	.21				.39		T.			.53				.25	.39		.26	.11		5.49
Tomahawk	do				.70	.10			.80				1.08				*	1.30		.20						.40	2.30		.30		.20	7.38
Trout Lake	do			1.60	.10	.17			.50			T.	1.15			T.	.35	T.		T.		.06				1.08		.78			T.	5.79
Twin Lakes Dam	do					2.40			.42				.92	.05						.25						.95			.39			5.38
Valley Junction	do	.70				.80			.40			1.10		.40	1.12	1.25				.05		1.50							1.10		.12	8.54
Viroqua	Mississippi		T.		.11	1.58			.02			.74	.72		1.35	1.42	.02		.03	.06	.15		.05	1.02		.10				1.90		T.	9.27
Watertown ‖	Rock					.20				T.			.47		.35	.82	.36	.07			.05			.97	.24			T.		.88		T.	4.41
Waukesha	Fox	.04			T.	.02			.37				1.10		.83	1.12	.41			.02				.30						.55		.04	5.40
Wausau ‖	Wisconsin	.04		.13	.13	.80				1.83			1.09				.08	.65			.18			.17				.93		.35		.03	6.41
Weyerhaeuser	Chippewa	T.		2.95	.55	2.00			.05			.56	.10		T.	.20	1.12	.07		.08		.05								.56			8.78
Whitehall	Mississippi		.60	.70	.50							.90		.20	2.00	.70		T.								.10	T.		.90		T.	7.50
Iowa.																																	
Albia ‖	Des Moines												.06										.05									0.11
Algona	do	.33				.50						.75											.35	1.00		.18						3.11
Alta ‖	Raccoon		.70			.17						.42	.44					T.						.46		T.		.04			.04	2.27
Amana	Iowa									T.		.38							.09	.04				.08							.02	0.61
Ames	Skunk		.34									1.20							T.			T.	.41								T.	1.95
Baxter	do		.02							.01		.44							.24	.01			.08		T.		T.				.02	0.82
Belle Plaine	Iowa		T.							T.		.14							.11	T.			.11								T.	0.36
Belmond	do	.37										.97											.70	.48		.08					T.	2.60
Bloomfield	Mississippi							T.	.22			.09				T.							T.				T.				.10	0.41
Bonaparte	Des Moines						T.					T.												.05							.47	0.52
Boone ‖	do		.24									T.	1.09						.03	T.				.57		T.			.06			1.99
Britt	Iowa	.01	.76			.08						1.95											.22	1.10		.14						4.26
Burlington ‖	Mississippi	.12	.02							T.			T.												.04							0.18
Carroll ‖	Raccoon		.41									.23	1.15						.20					.71		T.		T.				2.70
Cedar Rapids ‖	Cedar					T.							.26						.05	.09	T.			.06							T.	0.46
Charles City	do	.18			.05	.01						.96						.13		.34			.88	.16		.06		T.	.02	.02			2.81
Clinton	Mississippi					T.			.61	.11		.10	.10		T.				.74					.07				.06			T.	1.79
Columbus Junction	Iowa											.22												.08							.04	0.34
Davenport	Mississippi	T.				.10						.02			T.	T.			T.			T.	.03								.03	0.18
Decorah	do	.03	.02		T.	1.00			.53			1.45				T.			.32				.95		T.		T.		.15		.22	4.67
Delaware	do					.01		T.				.26							.62				.51								T.	1.40
Des Moines	Des Moines	T.	.12				T.	T.				.80							T.	T.			.01	.03		T.		.09				1.05
Dubuque	Mississippi				T.	T.			.64			1.09			T.			T.	.09	T.			.03	.41						.01		.04	2.31

TABLE 2.—*Daily precipitation for July, 1913. District No. 5*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Iowa—Continued.																																	
Earlham	Raccoon		.29			.30						1.33							T.					.04		T.		T.					1.66
Elkader	Mississippi		.05			.30						1.00						T.					1.65						T.		.05	3.05
Elma	Wapsipinicon.	.25	.45			.20					1.42				T.		T.		T.			.02	1.52		T.					.05	.02	3.93
Estherville ‖	Des Moines		1.25			.60						.65	.35					.05	T.					.45		.20	.10						3.65
Fairfield	Skunk																															.06	0.06
Fayette	Mississippi		.24									1.64		T.				T.		.19			.23	.97							.06	.10	3.43
Forest City ‖	Cedar	.63			.15							.20	1.06					.25		.04				1.05		.16			T.				3.54
Fort Dodge ‖	Des Moines		.30									.12	1.00											.95		T.							2.37
Fort Madison	Mississippi	T.						T.	T.			T.																				T.	T.
Grand Meadow	do		.02		.02	.10			.02			1.72			.01	.02			.28					1.25		T.				.12		.24	3.80
Grinnell	Iowa											.33							.02	T.			T.	.12									0.47
Grundy Center	Cedar		.09									.92								T.				.90						T.		T.	1.91
Guthrie Center	Raccoon		.64				.02	T.				.90							T.				T.	.15		T.		T.	T.			1.71
Hampton	Cedar	.17				.04						1.05											1.00						.08				2.34
Humboldt	Des Moines	.45	.05			.05						1.05	.06							.04			.06	.79		.02							2.57
Independence	Wapsipini'n				.03							.65							.45	.06				.65		T.						T.	1.84
Indianola	Des Moines						T.					.04							T.	T.	T.			.05		T.							0.09
Iowa City ‖	Iowa									.08			.23						T.					.06								.02	0.39
Iowa Falls ‖	do		.14										.77											.87			T.			.29			2.07
Keokuk	Mississippi	.04		T.			T.		T.			T.				.03				T.				.01				T.				.01	0.09
Keosauqua ‖	Des Moines	T.	T.					T.		.01			T.											.04	.01								0.06
Knoxville	do											.20								T.				T.				T.					0.20
Lacona	do	.01					.01					.02							T.					.01						T.	T.	T.	0.05
Lansing	Mississippi					1.70						1.35			1.30	.03			.15	.07				.80						.80		.03	6.23
Le Claire ‖	do	.45	T.			.09							T.			T.			.09	T.	T.			.08	T.		T.				T.	0.83
Marshalltown ‖	Iowa		.01			T.						T.	.44						.03	T.	T.			.42					T.			.20	1.10
Mason City	Cedar		.19			.13						.83							.07				.17	1.12		.10							2.61
Monroe	Skunk	T.					T.					.21							T.	T.						T.		T.				.10	0.31
Mount Pleasant	do																			T.				.03								.15	0.18
Muscatine ‖	Mississippi	.10								.03			.14											.02									0.29
Nora Springs	Cedar	.31			.18							1.20						.17		.02			1.33			.13							3.34
Northwood	do	.13				.18						1.58						.02	T.				.80			.03	T.	T.		.22			2.96
Olin	Wapsipini'n									.30		.25							.50	T.				.10								T.	1.15
Osage	Cedar	.12	.23			.31						1.15												1.40		T.				.20			3.41
Oskaloosa	Des Moines						T.					.06							T.					T.		T.		T.			T.		0.06
Ottumwa	do																						T.			T.							T.
Pella	do						T.					.19							T.					.06				T.					0.25
Perry	Raccoon		.15				T.					.64							.08	.03				.21	T.								1.11
Pocahontas	do	.33	.05			.20						.90											.32	.33		T.							2.13
Rockwell City	do											1.50						T.						1.10									2.60
Sac City	do	T.	.18					T.	T.			1.01							T.				.25	.66		T.						T.	2.10
St. Charles	Des Moines		.02					T.				.08												.03									0.13
Sigourney	Skunk								T.	.70		.11												.05				T.				.10	0.96
Stockport	Storm Lake						T.	T.		.01		.01			T.									.02				T.				.25	0.29
Storm Lake	Raccoon	.33				.24	T.					.70							T.					.53		.01			T.			T.	1.81
Tipton	Cedar									.39		.12	.10																				0.61
Toledo	Iowa		T.									.32												.22									0.54
Washington	Skunk											.10												.02								.01	0.13
Waterloo ‖	Cedar												.70						.38		T.			.83						T.		.19	2.10
Waukee	Raccoon		1.20									1.15							T.					.06		T.							2.41
Waverly	Cedar																																
Webster City	Des Moines	.18	.66									1.12								.04			T.	.85		T.		T.		.07			2.92
West Bend	do					.28						.90								T.			.25	1.00		.12							2.55
Whitten	Iowa		.15									1.18							.19	T.			T.	.86		T.							2.38
Winterset	Des Moines		T.					T.				.60								T.				.03									0.63
Missouri.																																	
Gorin	Mississippi	.09							.13																								0.22
Hannibal	do	.04			T.				T.			.12		.01	T.					.04	T.			T.			.06	T.	T.			T.	0.27
Louisiana	do	.30			.04						T.		.52		T.	T.	.38				.02						.03	.25					1.54
Macon	do	.32					T.	.16	.37			.31								T.					.04			T.	.10			T.	1.30
Mexico ‖	do		.09			.03		.11	.12	.14			.45			T.				1.41									.05	.03			2.43
Palmyra	do	.02		.10																.02								.21					0.35
Steffenville	do	.15		T.					T.											T.												T.	0.15
Sublett	do	T.						.50				2.00																					2.50
Vandalia	do	.19		T.					.15			.30	T.							.63													1.27
Warrenton	do	.42	.54		.06	.59			T.	.34			.53							.94					.07				.38				3.87
Indiana.																																	
Collegeville	Iroquois		T.												1.12	1.44								T.					.96				3.52
Knox	Kankakee		T.		T.	.38	1.03			.47	.53				.90	.82	T.		.02	T.	.03			.02				.11	.02				4.33
Laporte	do						T.			.76	.36				1.31	1.20	.10		.03									T.					3.76
Plymouth	do		T.			.02	.39			.63	.47				.90	.99	.56		.02					.02				.21	.08				4.29
South Bend	do					.02				.36	.38				77	.88	.22		.01					.02				.44				T.	3.10
Illinois.																																	
Aledo	Mississippi				0.5							02	T.											.03								T.	0.10
Alexander	Illinois	18			T.				T.				.42		T.	.27				21													1.08
Antioch	do	.25							.35				.30		.90		1.00							.50						.15			3.45
Astoria	do	.16							T.			T.	.03		T.	T.				T.				T.				.22	.01			T.	0.42
Aurora	do			T.					1.40	.20					1.48	T.			.18					.18								.14	3.58
Beardstown ‖	do	T.								T.		.23		T.						.10									.10				0.43
Bement	Mississippi	.06				.28							.03																				0.37
Bloomington	Illinois	.40				.02			T.				T.		T.	.78								T.				.07					1.27
Cairo	Mississippi	.14	.03	T.				.01		.20	.06	.35	.83												.01	T.		T.		T.	2.56		4.19
Camp Point	do	.25	.10	.01							.09					.89				.02				T.				T.				T.	1.36
Carbondale	do	.04								.14	.05		1.64							.05	.02				.81			.36			.22	.02	3.35
Carlinville	Illinois	.29	.01		.11	T.							.29		T.	.48				.66													1.84
Carlyle	Mississippi	.35			.20		T.			T.			.24		T.	T.								.06	.04			T.	T.				0.89
Chester ‖	do	.01	.12						T.	.14	T.		1.16									.16			.18	.42			.22	.92			3.33
Clinton	Illinois	.01	.01			.10				T.			.05		T.	1.23				.01								T.	T.		.61		2.02
Cobden	Mississippi	.15	T.							.15	.62	T.	1.45							T.	.16				.56		T.				.68		3.77
Dakota	do	T.		T.		.44			.78	.06		.10	.37		1.08		.67		.62					.23						.07		.08	4.50
Decatur ‖	Illinois		.07	.01									.05			.55	.65			.05								.02	T.				1.40
Dixon ‖	Mississippi	T.									.60	.10			.47		.10			.10				.10									1.47
Du Quoin	do	.06			.01					.75			.92												.25			.12	.11	.61	.42		3.25

TABLE 2.—*Daily precipitation for July, 1913. District No. 5*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Illinois—Contd.																																	
Dwight	Illinois	.02		T.	T.				1.16	.02					.06		.27			T.				T.				T.	T.			.08	1.61
East St. Louis ‖	Mississippi		1.84			.08				.02			.59		T.					.40					.09				.60				3.62
Edwardsville	do	1.10			.12								.77		T.					1.52	.15				.05			.20			.04		3.95
Fairview	Illinois	.10				T.			T.			T.	T.		T.	T.								T.				T.				T.	0.10
Galva ‖	do	T.	T.			T.				T.			T.			.63							.03	T.					T.		T.	0.66
Grafton ‖	Mississippi		.34			.08							.33							1.10					.07								1.92
Greenville	do	.29			T.								.70			.10				.33				.03	.27			.10	.04				1.86
Griggsville	Illinois	.13			.05				T.				.28		T.	.05				.13												T.	0.64
Havana	do	.10							T.			T.			.12	.30								T.				.90	.04				1.46
Henry	do	.07			.30				T.							.11			T.					.03					T.				0.51
Hillsboro ‖	Mississippi		.98			T.							.32			.06	.15			.45													1.96
Joliet	Illinois	.05		T.					1.75					.20	1.12	.20	.03		.05	.04				T.								.12	3.48
Kishwaukee	Mississippi	.01				.12			1.06	.50		.10	.08		.95	.68	.48		.27	.16				.10						25		.01	4.77
La Harpe	do	.14		T.					.07			T.				.02								T.				T.				T.	0.23
Lanark	Mississippi					T.			.43	.07		.17	.20		.33	T.	.55		.15	T.				.12				T.		.01		.05	2.08
La Salle	Illinois	.03			T.	T.			.20						.04	.07	.87							.02					T.		.19	T.	1.42
Lincoln	Illinois	.29		T.					T.				.08		.08	.55				.01				T.				T.	T.				1.01
Macomb	do	.14		T.			T.			T.			T.		.02																		0.16
Manteno	do	T.								1.63					1.18	T.	.02							T.				T.	T.		.04	.04	2.91
Martinton ‖	do	.09								.67					.80	T.	.35																.28	2.19
Mascoutah	Mississippi	.56		T.	.33					.05		.58				T.				.16				.17	.16			.12					2.13
Minonk	Illinois	.06							.04						T.	1.10				T.				.01				.03			.09	.62	1.95
Monmouth	Mississippi								T.				T.							T.				.05									0.05
Morris	Illinois	.03		T.					1.10	.19				.41		1.03							.02									.01	2.79
Morrison	Mississippi	T.							T.	.50		.10	.32		.01		.06		.38					.11		T.		.11				T.	1.59
Morrisonville	Illinois	.40		T.	T.				T.				.14		T.	2.84				.22								T.					3.60
Mount Vernon ‖	Mississippi										.36		.51			T.				.18					.27				.12				1.44
Nashville	do		.10		.06					.04		T.	.50		.02	.02				.28				T.	.05			.20			.05		1.32
Oregon	do	T.				T.			.95	.45	*	T.					.95		.50					.11									2.96
Ottawa	Illinois	.07		.07					1.00	.06						.15	.60															.22	2.17
Pana	Mississippi	.57														.36				.55								T.					1.48
Paw Paw	Illinois	T.		T.	T.				.21	.35			.02		.33	T.	1.36		.01	T.	T.			.04					T.		T.	.40	2.72
Peoria	do	.08							.02			T.			T.	.28								.02				.05	.01				0.46
Pontiac	do	.18								T.					.11	.27	.56							T.				.01			T.	T.	1.13
Quincy ‖	Mississippi	.02	.32							T.			.36				.04			T.	.01				T.				.04				0.79
Riley	do	.01							2.17			.03	.07		2.55	.68			.11	.19	.03			.16		T.				.01		.54	6.55
Roberts	Illinois	.45		T.		T.			.36	.07			T.		.07	T.	.71											T.	T.		T.	T.	1.66
Rockford ‖	Mississippi	.39				.07				2.65			.27		1.61	.04	.18		.36		.17			.11			T.				T.		5.85
Rushville	Illinois						T.	T.					.04	.02	.04									T.				.48	T.				0.58
St. Charles	do	.03			T.				2.00	.20		T.	.03		1.62	.04	T.		.18		.11			.12		T.					T.	4.33
St. Peter	Mississippi	.47								T.			1.07	T.		.15				.25				.15	.34		T.	T.		T.			2.43
Sparta	do	.80	T.		T.					.97			1.23							T.					.02			.20		.10			3.32
Springfield	Illinois	.02		.03	T.				T.			.14			.02	1.32				.13													1.66
Streator ‖	do	T.				T.				.79					.01	.12	.30			T.				T.							.28		.09	1.59
Sullivan	Mississippi					.03							.08			.04				.12												.03		0.30
Sycamore ‖	do	.41								1.91			.06		1.05	.28	.08				.23			.07							T.		T.	4.09
Tiskilwa	Illinois	T.			.01	.10			T.			T.			T.	.06		T.	T.				.07					.10				T.	0.34
Walnut	Mississippi	T.								.01		T.	T.		.04	.38	.57		.22	.01				.04					T.			T.	1.27
Warsaw ‖	do	.11																	T.														T.	0.11
Waterloo	do	.90			.88					.05			.62		T.					.25				.25				.79					3.74
White Hall	Illinois	.10		T.	T.	.36				T.				.38	T.	.10				.21								T.	.11				1.26
Windsor	Mississippi	.71			T.					T.			T.			.18				.03				T.							T.		0.92
Winnebago	do				T.				1.82	.02		.05	.23		1.60	T.	.55		.38	.06				.05						.06		.07	4.89
Yorkville	Illinois								.70	.64					.95	.70			.26		.02			.15									3.42

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 5, Upper Mississippi Valley.*

Date.	North Dakota.										Minnesota.															
	Bottineau.§§		Devils Lake.		Lisbon.§§		Minot.§§		Pembina.§§		Collegeville.		Crookston.§§		Grand Meadow.		Montevideo.§§		Moorhead.		New Ulm.§§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	70	51	64	49	76	53	70	53	68	54	81	63	68	56	82	61	83	64	70	55	85	64	78	62	85	64	77	60
2	73	47	68	45	76	44	77	47	72	45	81	57	78	52	87	58	84	54	76	48	86	58	77	50	85	61	75	56
3	68	49	77	53	78	55	72	51	72	54	77	61	76	58	92	68	85	63	74	57	90	64	81	63	89	62	74	60
4	67	51	64	53	74	53	62	51	73	58	74	57	73	53	93	65	82	55	74	52	93	64	68	55	83	64	69	58
5	77	53	72	54	79	50	79	54	70	51	71	59	74	54	81	61	82	55	75	53	79	60	71	65	74	63	70	60
6	82	45	79	52	84	53	84	51	80	48	78	58	80	54	83	56	80	56	80	55	83	60	87	59	81	60	78	52
7	95	56	85	55	87	53	94	54	78	50	82	60	85	56	88	64	83	57	84	55	89	57	86	60	83	61	79	56
8	82	46	82	55	77	52	80	51	80	55	85	56	88	63	91	67	88	66	88	63	91	65	81	56	88	64	82	63
9	80	45	76	48	77	49	81	46	78	48	76	58	75	55	80	64	79	54	75	54	77	57	87	48	76	62	78	57
10	69	54	73	52	80	49	76	59	68	46	76	58	78	50	82	57	81	53	78	49	81	53	78	46	77	55	76	46
11	74	52	70	56	75	60	64	56	72	48	74	57	72	60	78	60	75	62	72	60	73	59	72	54	69	53	72	52
12	61	51	63	52	77	46	69	55	68	52	68	57	67	55	74	56	66	56	68	57	78	58	66	56	72	59	71	52
13	62	41	69	48	72	45	69	48	75	48	74	54	70	54	82	57	72	51	73	52	85	54	75	53	77	56	72	50
14	76	52	72	53	78	60	77	53	80	48	76	59	77	52	91	60	82	63	82	56	93	66	79	52	74	61	76	50
15	80	51	82	54	82	62	80	51	84	52	70	59	81	56	83	63	74	65	81	66	89	65	76	52	71	60	76	57
16	82	58	80	63	82	68	83	59	82	58	82	62	80	63	93	64	81	65	80	65	91	69	84	53	83	66	78	54
17	84	57	81	57	87	60	84	60	85	53	80	63	82	65	82	66	75	66	83	61	80	69	85	56	71	64	80	55
18	83	44	82	52	83	52	85	51	82	52	79	61	84	56	82	59	82	58	82	55	85	58	82	58	81	61	80	56
19	79	50	75	54	80	52	80	56	80	53	76	59	76	59	83	55	82	60	79	56	82	61	80	60	79	60	75	58
20	83	42	77	44	81	50	82	46	90	43	77	55	77	50	80	51	79	56	78	51	82	53	78	56	76	56	76	52
21	90	53	88	57	89	46	90	59	83	50	79	58	88	54	80	54	84	56	87	50	82	54	80	52	79	57	80	52
22	79	56	76	54	79	60	79	56	80	53	71	63	77	59	81	57	74	60	77	57	76	59	76	58	76	61	75	51
23	72	48	67	49	75	50	74	49	80	49	72	55	72	52	79	58	78	52	72	52	75	56	74	51	75	58	78	51
24	82	45	75	49	80	42	82	49	82	35	75	53	76	46	78	49	79	50	76	46	75	51	73	42	72	54	74	52
25	83	55	76	55	78	52	84	53	85	50	72	56	81	53	71	49	75	59	78	55	72	55	76	49	72	54	76	51
26	74	57	80	56	91	56	75	59	90	55	83	57	89	60	92	58	83	60	89	59	95	61	83	58	91	61	82	58
27	74	46	69	50	78	56	74	46	80	50	74	60	68	55	85	66	77	55	72	52	78	61	77	58	77	60	76	54
28	79	47	73	48	83	40	84	50	98	41	74	52	72	48	88	61	82	50	78	46	88	55	73	48	80	54	72	51
29	99	54	95	57	100	53	96	55	98	40	84	57	90	54	95	62	95	58	94	58	93	59	88	52	93	63	89	70
30	72	51	77	57	83	60	7	54	86	55	86	74	83	65	95	67	94	69	83	62	99	63	92	61	96	71	90	62
31	83	42	81	50	88	48	83	50	86	48	80	59	85	52	85	63	85	56	84	53	78	62	85	58	78	64	78	58
Mns.	77.9	50.0	75.7	52.6	80.9	52.5	78.7	52.6	79.7	49.7	77.0	58.6	78.1	55.5	84.4	59.9	80.7	58.2	78.8	55.2	84.0	59.7	79.0	54.9	79.5	60.3	76.9	55.3

Date.	Wisconsin.														Iowa.											
	Eau Claire.		Grantsburg.		Hancock.		La Crosse.		Madison.		Prentice.		Wausau.		Algona.		Cedar Rapids.§§		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	87	64	86	61	88	64	91	65	82	69	82	52	85	62	90	65	87	70	88	60	85	73	87	66	84	69	82	72
2	84	60	88	52	88	63	87	62	87	67	80	51	79	60	87	59	94	66	88	60	89	70	88	69	88	66	90	68
3	90	63	86	57	94	67	94	69	91	68	81	61	88	62	86	65	98	71	93	68	93	73	93	69	92	69	91	73
4	85	65	76	57	92	70	91	64	91	73	81	63	84	66	93	66	96	75	92	69	91	75	90	74	92	75	89	76
5	80	65	75	62	88	64	80	63	78	64	81	60	75	63	84	63	90	75	80	61	87	69	89	72	83	68	90	73
6	78	57	79	54	78	57	81	61	76	60	70	52	70	56	85	57	86	62	84	57	87	61	90	65	84	62	87	66
7	82	58	83	53	85	52	84	58	80	56	78	46	77	46	90	60	93	66	89	56	88	65	91	69	87	61	90	69
8	87	63	86	64	78	63	92	64	83	63	78	54	74	58	94	67	98	68	93	65	95	72	88	72	94	66	90	69
9	82	60	77	55	77	64	76	62	74	63	72	52	72	60	85	64	86	69	75	58	86	65	84	66	78	64	91	69
10	77	51	79	46	77	48	78	54	74	56	73	39	74	46	84	51	84	59	82	51	79	61	82	60	76	60	82	61
11	75	57	72	53	75	51	67	58	75	50	73	52	68	51	74	64	80	56	71	56	87	54	77	64	76	55	89	58
12	73	59	73	53	75	57	78	58	78	59	66	55	69	56	79	56	84	53	79	57	85	63	86	60	81	60	85	62
13	76	59	75	55	80	58	83	56	82	60	61	54	69	57	87	72	99	60	85	53	94	69	94	64	89	63	95	71
14	72	58	77	54	74	57	84	63	78	58	70	55	68	51	93	68	96	65	92	67	94	70	94	76	92	68	94	76
15	76	58	72	59	77	57	84	61	81	60	76	58	75	57	92	74	101	71	89	68	93	73	98	76	87	70	94	79
16	81	61	83	59	83	60	86	67	92	64	76	56	74	58	93	74	104	73	96	70	101	75	100	77	99	72	100	79
17	80	64	77	60	82	67	79	66	82	67	74	58	75	61	87	68	94	73	86	67	94	75	98	75	87	71	100	77
18	81	62	80	57	84	64	81	63	77	66	75	62	79	61	81	66	80	70	81	60	84	70	84	69	80	67	87	72
19	79	55	79	59	80	55	83	58	80	60	75	50	78	54	84	57	86	61	82	54	86	64	87	60	83	62	87	68
20	76	53	77	51	76	53	76	55	72	57	74	42	73	52	79	56	79	60	77	54	79	61	81	62	76	58	80	65
21	79	50	80	55	80	51	80	54	77	57	74	40	76	43	83	51	86	56	81	50	82	57	83	56	80	57	83	62
22	81	56	72	60	83	60	83	58	80	60	74	54	82	56	80	57	91	58	80	55	87	65	89	61	83	63	87	65
23	75	56	73	52	80	62	78	60	75	63	74	52	75	59	77	62	81	66	76	59	82	66	80	67	78	63	81	70
24	73	50	76	54	75	49	73	55	71	58	70	41	70	48	77	52	79	57	76	52	79	58	80	59	74	58	81	63
25	74	47	77	43	74	50	71	53	69	56	72	38	70	44	76	58	80	58	75	56	80	58	82	60	72	36	82	58
26	89	58	87	56	86	58	89	61	86	58	81	54	82	55	92	64	97	58	93	62	92	62	96	68	91	60	93	65
27	86	65	83	60	88	71	85	64	86	69	81	46	86	58	83	66	90	65	82	60	91	75	87	72	89	69	87	75
28	81	53	77	45	83	44	85	57	82	64	78	45	79	55	87	57	94	64	88	56	91	69	95	65	88	64	95	72
29	88	64	89	57	91	62	91	64	90	62	88	61	87	60	96	74	104	65	97	70	102	75	101	78	99	69	102	77
30	94	72	95	73	95	68	95	73	94	70	92	67	91	64	97	75	106	77	100	71	102	75	100	77	100	74	100	78
31	90	69	86	63	94	74	83	62	84	65	92	66	80	71	89	68	89	76	80	59	91	69	85	63	88	65	93	72
Mns.	81.0	59.1	79.8	56.1	82.6	59.4	82.8	60.9	80.9	62.0	76.5	52.8	76.9	56.5	85.9	63.2	90.7	65.3	85.0	60.0	88.9	67.3	89.0	67.5	85.5	64.6	89.6	69.7

TABLE 3.—*Maximum and minimum temperatures for July, 1913. District No. 5*—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.§§															
					Cairo.		Greenville.		La Salle.		Monmouth.		Mount Vernon.		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	82	73	88	69	95	74	91	72	83	71	83	73	96	72	81	71	84	73	85	68
2	90	71	91	58	87	74	93	69	91	65	91	65	92	70	91	65	90	71	93	62
3	91	74	95	62	86	73	92	71	93	71	94	67	92	71	94	71	92	74	97	67
4	90	75	93	71	92	73	92	71	92	74	94	67	93	71	92	74	90	73	94	72
5	91	77	93	60	96	75	96	72	89	71	89	67	97	73	90	67	95	75	85	67
6	85	66	85	58	93	77	87	66	85	63	89	62	87	68	87	62	88	68	81	58
7	91	64	81	48	81	70	89	64	86	60	91	64	86	63	90	65	90	66	85	53
8	95	72	87	55	89	68	95	66	95	66	94	65	97	68	97	68	98	68	95	58
9	93	71	80	59	86	71	97	68	87	65	90	69	95	64	91	67	96	70	80	62
10	85	65	79	52	84	68	98	62	75	56	84	56	93	65	81	60	84	62	80	54
11	90	64	84	50	84	69	92	60	88	49	90	53	90	64	91	55	92	58	84	46
12	87	64	87	55	81	67	88	62	86	66	87	62	88	67	87	66	88	67	81	59
13	95	70	92	63	89	69	94	66	97	69	97	69	91	67	97	66	97	70	91	61
14	97	77	86	62	92	74	97	66	95	69	97	74	96	71	95	73	94	75	93	62
15	95	76	88	65	91	75	88	73	91	70	93	75	90	74	93	75	80	70	90	66
16	102	75	88	68	93	76	99	73	97	70	103	76	96	73	100	75	98	75	96	68
17	102	78	88	67	97	75	102	71	91	69	102	70	102	72	100	72	102	75	86	68
18	92	76	73	62	99	76	103	73	84	66	.....	67	103	73	87	67	90	71	80	60
19	88	69	80	62	86	76	88	65	85	65	92	63	92	65	87	67	88	68	82	58
20	83	69	72	58	88	70	86	68	79	59	83	59	87	62	83	58	84	65	76	56
21	83	60	73	53	82	66	85	56	81	54	85	52	84	58	83	52	81	59	80	50
22	88	58	82	50	89	65	90	56	86	60	90	60	88	56	88	57	86	61	86	55
23	84	72	78	53	90	67	96	56	81	65	83	65	95	60	80	66	88	65	78	62
24	82	64	75	60	79	70	86	68	78	58	83	57	83	70	81	61	83	63	80	55
25	84	62	75	47	85	66	87	57	82	51	85	57	84	59	83	58	84	56	75	49
26	93	69	87	46	89	72	95	65	92	61	95	61	94	65	92	62	91	65	91	55
27	89	72	93	62	90	73	95	72	91	75	90	71	97	72	90	72	94	75	93	70
28	95	71	85	70	92	75	95	71	91	72	97	67	95	71	94	71	94	75	90	62
29	102	75	95	65	90	73	103	72	102	67	105	69	100	74	103	72	103	74	100	62
30	99	73	96	76	95	68	103	71	103	72	106	72	100	70	103	73	101	78	103	69
31	98	77	86	70	94	72	101	72	90	68	95	73	98	71	94	72	97	77	90	70
Means	91.0	70.3	85.0	59.9	89.2	71.5	93.6	66.9	88.6	65.1	91.9[a]	65.4	92.9	67.7	90.5	66.5	91.0	69.1	87.1	62.7

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

GENERAL SUMMARY.

In the northwestern part of the district the weather was either normal or cool and wet for the season. Progressing in a southerly and easterly direction there was a gradual decrease in the amount of precipitation and an increase in the degree of heat, culminating in unusually hot and dry weather over what may be termed the lower two-thirds of the Missouri River drainage area. In Montana there were only two periods, the 6th–9th and 18th–21st, during which the weather was as hot as might be expected in July; during the remainder of the month the nights were quite cool, and on the 14th light frost formed at a number of stations. In most localities the precipitation was above the normal, and in those places where there was a deficiency the lack of moisture in July was not felt deleteriously on account of an excess of rain in June. In Wyoming the cool, wet weather was more pronounced than in Montana; the average precipitation was greater than in any other July of the last 22 years. Showers were well distributed in the early summer and the native hay crop was unusually large, and hills that in other years became brown in the latter half of the month were green at the end of this July, affording an excellent supply of range feed. The most unfavorable feature was the frost in portions of the State on the 30th and 31st; it damaged potatoes and tender vegetables in some sections, but there were other localities in which the temperature fell below the freezing point without causing more than slight damage. In Colorado the temperature was higher, and the precipitation was unevenly distributed, some areas having more than is usual in July and others having a marked deficiency, but there appears to have been a sufficiency in the greater part of the area drained by tributaries of the Missouri River. In both the Dakotas the weather was rather unfavorable for farming interests; the precipitation was unevenly distributed. There were places that had sufficient moisture, but in adjacent regions of greater extent droughty conditions prevailed. As a rule, the greatest amount of rain fell in the eastern counties. In Nebraska, Kansas, Iowa, and Missouri dry, hot weather prevailed, and at the close of the month the unfavorable effects of the season were becoming marked; pastures were brown, garden growth was at a standstill and corn was suffering for want of moisture. In parts of Kansas and Missouri the deficient rainfall in July was proving especially unfavorable for crops on account of the fact that comparatively dry weather had prevailed since the latter part of April.

There was an unusually small number of severe local storms.

TEMPERATURE.

The average temperature for the month was above the normal in Missouri, Iowa, Kansas, and all of Nebraska except the northwestern part. In the remainder of the district it was mostly below the normal, the departure being greatest in Montana and Wyoming. There were no well-marked periods of temperature extremes, and both the highest and the lowest thermometer readings at the individual stations occurred on dates that were distributed throughout the month. In the lower part of the district the periods of cool weather were few and of short duration; to this, principally, the high monthly average was due, for there were not many stations that had unprecedentedly high temperatures, although in western Kansas there was a temperature of 116°, the highest ever recorded in that State by an official thermometer. In Iowa, Missouri, Kansas, and Nebraska there has been no July with a higher average temperature since 1901, but in Montana and Wyoming the weather was unusually cool, with freezing temperatures in many of the elevated valleys.

PRECIPITATION.

In Montana there were fairly well distributed showers, except between the 13th and 20th. In both Wyoming and Colorado most of the rain fell during the last 15 or 16 days. North Dakota had general showers on the 2d, 4th, 10th, 11th, 16th, and 17th, while South Dakota and Nebraska had almost all of their precipitation in light showers that were scattered throughout the month. On the 7th, 11th, and 23d there was light or moderate rain at almost every station in western Iowa; this represented practically all of the month's precipitation for that area. In Kansas the most scattered precipitation of the entire district occurred; all of the rains were in the form of local showers. In Missouri the conditions were about as they were in Kansas, except that on the 7th and 8th fairly general rains occurred. The monthly totals were markedly deficient in Missouri, Iowa, Kansas, and all of Nebraska except the northwestern part of the State; there were, however, a few isolated localities, mostly in Missouri, where purely local downpours gave more than the normal amount for the month.

RIVERS.

Falling stages prevailed in all of the streams, except a few in the upper portion of the drainage area. The Missouri River below Omaha was exceptionally low for July.

TABLE 1.—*Climatological data for July, 1913. District No. 6, Missouri Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Arapahoe	Fremont	5,200	3								0.42		0.22	0	3	16	11	4	sw.	Edw. L. Seymour.
Basin	Bighorn	3,862	14	71.0	− 2.9	102	9†	36	31	52	2.11	+ 1.57	0.87	0	8	18	5	8	s.	O. J. Robertson.
Big Creek Station	Carbon	7,500	2																	U. S. Forest Service.
Boyd	Weston	6,192	....	59.8	.....	85	7†	30	31	39	2.37	.....	0.59	0	15	14	11	6	sw.	Kirk Baker.
Burns	Laramie	5,400	3	66.0	.....	96	12	40	30	44	2.88	.....	1.10	0	10	13	17	1	sw.	E. W. Bastian.
Casper	Natrona	5,101	4	66.4	.....	94	13	39	31	46	1.98	.....	0.69	0	11	14	14	3	w.	Jos. A. Murray.
Centennial	Albany	8,074	10	59.8	.....	83	13	34	31	41	1.62	.....	0.35	0	10	13	7	11	w.	Louis A. Gregory.
Cheyenne	Laramie	6,088	42	65.2	− 2.2	92	13	43	31	40	1.42	− 0.57	0.90	0	12	10	14	7	nw.	U. S. Weather Bureau.
Chugwater	Platte	5,282	12	65.4	− 0.4	95	7	32	31	53	2.00	+ 0.57	0.72	0	8	16	14	1	w.	A. H. Woolever.
Clark	Park	4,320	8	68.2	.....	96	7†	45	14†	45	1.51	.....	0.43	0	8	15	9	7	w.	Chas. A. C. Snow.
Cody	....do	5,000	6	66.0	.....	95	9	41	12	43	1.37	.....	0.25	0	10	17	10	4	w.	D. A. Tinkcom.
Crandall Creek	....do			53.2	.....	85	6	22	14	51	4.07	.....	0.81	T.	15	16	4	11	sw.	Ira H. Sparhawk.
Dome Lake	Sheridan	8,821	5	50.3	.....	74	6†	31	14	37	2.44	.....	0.68	0	10	16	13	2	sw.	Abe Mills.
Douglas	Converse	4,793	4	67.2	.....	97	6†	35	26†	50	1.73	.....	0.60	0	6	25	0	6	nw.	Henry C. Miller.
Dubois	Fremont	6,909	6	57.2	.....	82	9	32	29	43	1.13	.....	0.27	0	11	11	15	5	w.	Dr. F. H. Welty.
Eatons Ranch	Sheridan	4,600	8	66.3	.....	91[a]	6†	40[a]	29	43[a]	2.94	.....	1.10	0	7	17[a]	6[a]	7[a]	n.	F. A. Eaton.
Echeta	Campbell	4,200	4								2.64	.....	1.10	0	6	19	6	6	s.	M. R. Hunter.
Elk Mountain	Carbon		8								1.89	.....	0.87	0	9	....				Wm. Richardson.
Encampment	....do	7,322	4	63.0	.....	88[a]	6	40[a]	12†	38[a]	3.50	.....	1.90	0	8	6[a]	14[a]	4[a]	sw.	U. S. Forest Service.
Ervay	Natrona	6,400	4	61.8	.....	88	7†	32	31	49	1.41	.....	0.53	0	5	18	8	5	sw.	Frank Jameson.
Fort Laramie	Goshen	4,270	35	70.2	− 2.6	103	6	34	12	51	2.95	+ 1.39	1.46	0	5	19	10	2	w.	John Hunton.
Foxpark	Albany	9,015	3	51.4	.....	80[f]	6	24[e]	31	51[f]	1.33	.....	0.40	0	6	11[e]	8[e]	7[e]	sw.	U. S. Forest Service.
Germania	Bighorn	4,312	2	66.1	.....	93	9	41	31	41	1.01	.....	0.46	0	13	20	9	2	nw.	J. W. Feper.
Gillette	Campbell	4,546	7																	M. H. Shields.
Horse Creek	Fremont	8,000	1	50.2	.....	78	6	26	12†	45	3.46	.....	1.01	0	13	13	10	8	w.	U. S. Forest Service.
Hunters Station	Johnson	8,000	7	54.8	.....	82	6	23	31	41	3.67	.....	0.73	0	14	23	2	6	w.	Do.
Hyattville	Bighorn	4,632	14	70.0	+ 0.5	98	6†	42	12	47	0.12	.....	0.12	0	1	13	5	13	w.	Wm. Booth.
Jireh	Niobrara	5,100	3								1.99	.....	0.42	0	9	13	15	3	se.	P. L. Ford.
Kinnear	Fremont		....	65.7	.....	95	6	38	12	50	1.99	.....	0.98	0	7	16	7	8	w.	John C. Hays.
Kirtley	Niobrara		9	65.7	.....	96	13	32	31	51	2.02	.....	0.47	0	9	21	4	6	w.	D. M. Zum Brunnen.
Kirwin	Park	9,187	4	48.8	.....	70	6†	30	31†	33	3.95	.....	0.53	2.0	17	13	12	6	w.	C. L. Tewksbury.
Knowles	Crook	4,500	4								2.64	.....	0.62	0	7	19	9	3	e.	Geo. A. Knowles.
Lagrange	Goshen	4,720	3	69.0	.....	101	13	40	12†	57	3.73	.....	1.66	0	9	22	6	3	w.	Owen Shupp.
Lander	Fremont	5,372	21	66.4	− 1.6	94	9	40	31	46	1.03	+ 0.17	0.67	0	7	11	15	5	sw.	U. S. Weather Bureau.
Laramie	Albany	7,188	22	61.6	− 0.7	89	6	37	31	45	2.40	+ 0.72	1.87	0	7	18	7	6	.....	University of Wyoming.
Leo	Carbon	6,878	11																	C. A. Cowdin.
Lolabama Ranch	Park	7,052	9	54.4	.....	86	7	25	30	45	2.61	.....	0.40	0	11	14	10	7	w.	Mary E. Painter.
Lovell	Bighorn	3,825	7																	R. Fred Harrison.
Lusk	Niobrara	5,007	22	67.9	− 0.1	98	12	33	30	48	2.16	+ 0.67	0.95	0	5	....				D. E. Goddard.
Manville	....do	5,050	3								1.98	.....	0.65	0	7	10	19	2	se.	L. C. Stoddard.
Moorcroft	Crook	4,311	9	70.3	.....	99[a]	9†	45[a]	26	51[a]	0.95	.....	0.30	0	7	10[a]	13[a]	7[a]	s.	C. T. McCampbell.
Moore	Albany	6,000	12	63.6	− 0.6	93	7†	32	31	48	5.18	+ 3.34	1.73	0	9	7	16	8	w.	Edwin Moore.
Newcastle	Weston	4,319	6	71.6	.....	100	7	40	31	40	1.34	.....	0.57	0	7	11	20	0	w.	Dr. S. W. Johnson.
Pathfinder	Natrona	5,735	7	68.7	.....	93	6†	42	31	41	0.49	.....	0.20	0	8	8	21	2	sw.	U. S. Reclamation Service.
Pinebluff	Laramie	5,038	10	68.6	+ 0.3	98[f]	12	42[f]	12	43[f]	3.92	+ 1.16	1.21	0	12	3[a]	5[a]	6[a]	.....	C. L. Beatty.
Pine Ridge	Crook		1								1.30	.....	0.46	0	7	4	19	8	.....	J. E. S. Altaffer.
Powell	Park	4,376	5	67.6	.....	96	7	42	12†	42	1.03	.....	0.25	0	12	18	3	10	nw.	U. S. Reclamation Service.
Rawlins	Carbon	6,748	11	65.8	− 0.6	92	6†	39	31	45	1.88	+ 0.72	0.54	0	11	13	17	1	w.	E. J. Ehrenfeld.
Rock River	Albany	6,900	....	64.1	.....	92	6	34	31	48	0.72	.....	0.40	0	6	20	9	2	w.	Rock Creek Conservation Co.
Rockypoint	Crook		1								1.07	.....	0.23	0	9	17	7	7	n.	P. Woxen.
Saratoga	Carbon	6,785	15	64.1	− 1.2	90	6†	33	12†	51	1.46	+ 0.46	0.65	0	6	17	4	10	w.	R. G. Hamilton.
Seven-mile Creek	....do		2	57.8	.....	81	13	35	31	40	1.75	.....	0.76	0	9	17	0	14	sw.	U. S. Forest Service.
Sheridan	Sheridan	3,790	18	64.9	− 2.6	95	7	40	31	49	1.70	+ 0.92	0.62	0	12	12	13	6	se.	U. S. Weather Bureau.
Shoshone Dam	Park	5,385	7	66.7	.....	95	6†	46	30†	42	1.12	.....	0.38	0	6	14	9	8	w.	U. S. Reclamation Service.
South Pass City	Fremont	7,796	11	55.9	.....	82	6	22	31	50	1.26	.....	0.29	0	9	9	17	5	sw.	John Sherlock.
Sundance	Crook	4,750	1	65.6	.....	95	13	37	12	50	0.95	.....	0.30	0	5	17	10	4	w.	Geo. W. Ashdown.
Thermopolis	Hot Springs	4,350	9	69.0	.....	97	6	40	31	51	1.19	.....	0.41	0	7	19	8	4	.....	A. L. Duhig.
Ulm	Sheridan	4,448	1	65.8	.....	95	7	36	12	47	1.80	.....	0.47	0	9	14	14	3	nw.	W. H. Coleman.
Upton	Weston		1	67.8	.....	99	29	32	31	58	1.05	.....	0.25	0	5	7	20	4	w.	Ray C. Thompson.
Verona	Sheridan	4,360	4								1.83	.....	0.50	0	9	11	16	4	se.	O. A. Roode.
Wheatland	Platte	4,700	2	67.5	.....	102	6†	29·	31	61	1.74	.....	0.89	0	3	19	7	5	se.	C. A. Rockwell.
Wiants Ranch	Carbon	7,400	3								2.12	.....	0.56	0	11	6	18	7	sw.	Ira G. Wiant.
Woodrock	Sheridan	8,500	2								3.73	.....	0.85	0	18	13	13	5	sw.	U. S. Forest Service.
Worland	Washakie	4,033	2	69.0	.....	97	6†	39	31	49	0.78	.....	0.28	0	8	17	10	4	nw.	Prof. B. C. Buffum.
Wyncote	Goshen	4,186	6	67.9	.....	95	6†	34	12	54	3.47	.....	2.62	0	5	5	24	2	ne.	U. S. Reclamation Service.
Yellowstone Park	Yellowstone Park.	6,200	25	57.2	− 4.3	83	6	32	14	38	3.14	+ 1.96	1.20	0	15	10	12	9	sw.	U. S. Weather Bureau.
Fountain	....do	7,220	7	51.6	.....	78	7	19	30	44	.....	.....	.....	....		18	6	7	w.	U. S. Army.
Gallatin	....do	7,400	2											0	....	14	2	15	s.	Do.
Grand Canyon	....do	7,900	6	52.2	.....	79[a]	9	26[a]	14	46	4.75	.....	1.35	1.0	10	12	12	7	w.	Do.
Lake Yellowstone	....do	7,733	9	51.6	.....	78	9	25	14	43	6.58	.....	1.30	4.0	12	18	2	11	se.	Do.
Norris	....do	7,500	9	51.6	.....	80	6†	24	14	49	3.44	.....	0.90	T.	12	14	3	14	sw.	Do.
Riverside	....do	6,500	7			85	8†				4.02	.....	1.19	0	11	18	5	8	s.	Do.
Soda Butte	....do	7,000	8	54.4	.....	86	7	28	12	49	4.62	.....	1.30	0	12	12	10	9	sw.	Do.
Sylvan Pass	....do	7,000	6	54.7	.....	83	6†	28	14	48	5.62	.....	1.01	0	17	17	3	11	w.	Do.
Thumb	....do	7,772	7	51.4	.....	78	6†	26	14	43	4.93	.....	1.54	T.	12	15	10	6	s.	Do.
Tower Falls	....do	6,250	4	56.2	.....	86	9	27	14†	51	3.42	.....	0.60	0	12	19	3	9	w.	Do.
Upper Geyser Basin	....do	7,395	9			80	6				4.92	.....	1.50	0	11	12	11	8	w.	Do.
Montana.‡																				
Absarokee	Stillwater	4,000	3	63.0	.....	92	8	37	31	48	2.75	.....	0.92	0	7	22	2	7	sw.	E. F. Bryant.
Adel	Cascade	5,200	14	60.0	0.0	89	9	35	15	45	1.77	− 0.21	0.52	0	10	13	8	10	w.	Mrs. Bessie F. Burch.
Agricultural College	Gallatin	4,900	15	60.2	− 3.6	89	6	32	14	37	2.17	+ 0.94	0.52	0	12	14	13	4	nw.	E. Burke.
Augusta	Lewis and Clark	4,071	14	60.5	− 1.7	90	20	33	16†	47	3.12	+ 1.27	2.86	0	2	25	6	0	w.	C. C. Covington.
Babb	Teton	4,461	6	54.8[e]	.....	84[k]	6	32	16†	46[k]	2.45	.....	0.80	0	6	....				U. S. Reclamation Service.
Bald Butte	Lewis and Clark	6,500	3								1.64	.....	0.43	0	10	14	10	7	.....	Mary L. Alderson.
Bigtimber	Sweet Grass	4,094	7	65.4	.....	93	7	43	30†	40	2.56	.....	0.80	0	8	17	9	5	w.	F. A. Severance.
Billings	Yellowstone	3,115	17	67.2	− 4.4	102	7	37	14	47	1.27	+ 0.21	0.40	0	12	22	6	3	sw.	Dean J. Cole.
Blackleaf	Teton	4,260	5	58.0	.....	88	6	33	27†	42	0.78	.....	0.38	0	4	15	6	10	w.	Roy McNeal.
Boulder Nursery	Jefferson	5,200	17	57.8	− 4.6	85	7†	28	14	46	2.08	+ 0.97	0.77	0	9	11[a]	16[a]	3[a]	.....	U. S. Forest Service.
Bowen	Beaverhead	6,080	6	52.3	.....	82	9	18	14	51	1.43	.....	0.38	0	8	18	8	5	.....	B. B. Lawrence.
Box Elder	Hill	2,677	....	64.9	.....	95	9	35	28	46	2.20	.....	0.65	0	13	17	10	4	n.	C. L. Herzog.
Bridger	Carbon	3,664	4	65.9	.....	97	9	40	12	48	1.18	.....	0.38	0	6	10	14	7	n.	L. E. Gard.
Broadview	Yellowstone	3,800	6	65.8	.....	98	7	35	14	46	1.92	.....	0.78	0	6	27	1	3	nw.	Thos. S. Hunt.
Browning	Teton	4,440	4	59.7	.....	88	6	30	15†	46	1.05	.....	0.85	0	2	27	4	0	w.	U. S. Reclamation Service.
Busby	Big Horn	.....	9	67.4	− 0.7	99	8	38	31	46	1.04	− 0.45	0.31	0	9	18	10	3	w.	Rev. G. A. Linscheid.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Montana—Continued.																			
Busteed	Stillwater	4,050	5	64.0	.....	95	9	34	14	49	2.04	.....	0.62	0	9	20	9	2	w.	T. H. Busteed.
Canyon Ferry	Lewis and Clark	3,670	14	66.3	− 1.3	93	9†	40	14†	40	1.36	− 0.09	0.40	0	7	17	11	3	nw.	W. L. Kirk.
Cascade	Cascade	3,361	8	65.0	− 1.9	94	6	34	16	48	1.67	+ 0.04	0.42	0	12	18	12	1	sw.	Dr. E. E. James.
Chester	Hill	3,132	9	64.5	.....	91	9	38	15	49	0.75	.....	0.40	0	4	24	7	0	w.	C. F. Baker.
Chinook	Blaine	2,502	14	62.0[d]	− 7.7	96	9	38[h]	16	40[h]	0.95	− 0.41	0.50	0	4	17	14	0	w.	T. O'Hanlon Company.
Clearcreek	....do		7																	Cortez Sedgewick.
Clydepark	Park	5,027	1	58.6	.....	91	7†	32	14	46	1.95	.....	0.61	0	10	10	13	8	se.	J. H. Eyman.
Conrad	Teton	3,501	2	64.6	.....	96	9	35	16	50	0.41	.....	0.28	0	4	24	3	4	w.	Robert J. Kelly.
Copper	Meagher	5,680	9								2.46	.....	0.80	0	6	21	7	3	w.	Orville Harris.
Crow Agency	Big Horn	3,041	30	69.0	− 2.4	97	9	43	12†	46	0.87	− 0.41	0.30	0	7	18	13	0	.....	Harry Throssell.
Culbertson	Sheridan	1,927	10	66.2	− 3.5	92	7†	38	27	40	1.87	− 0.41	1.10	0	8	13	17	1	w.	G. H. Coulter.
Cut Bank	Teton	3,745	14	62.8	+ 1.5	95	9	35	15†	46	4.49	+ 2.80	2.33	0	5	27	4	0	w.	Chas. N. Thomas.
Denton	Fergus	3,500	4	64.8	.....	90	20	38	14	39	1.43	.....	0.45	0	11	23	3	5	nw.	P. J. Griesenauer.
Dillon	Beaverhead	5,143	15	58.6	− 5.9	86	6	31	13†	43	1.61	+ 0.46	0.32	0	10	16	8	7	sw.	Prof. J. E. Monroe.
Dry Wolf Camp	Cascade	6,000	4																	Mrs. Harriet R. Eveleth.
Dunkirk	Hill	3,450	1								1.42	.....	0.70	0	6	24	7	0	w.	B. C. Protzman.
Ekalaka	Custer	.....	12	67.5	− 1.9	94	6†	42	27	42	3.23	+ 1.72	1.27	0	11	18	13	0	w.	William Freese.
Fallon	....do	2,208	8	70.6	.....	99	9	40	27	49	1.07	.....	0.56	0	5	20	9	2	w.	Mrs. A. C. Gifford.
Findon	Meagher	6,000	1	57.8	.....	82	9	35	30	36	1.81	.....	0.43	0	15	20	6	5	w.	Lewis Cameron.
Flathead Creek	Gallatin	6,000	2	52.4	.....	81	7	32	14†	38	2.66	.....	1.20	.....	8	13	9	9	nw.	Alta Williams.
Flatwillow	Fergus										1.30	.....	0.41	0	10	22	7	2	nw.	W. Johnson.
Forsyth	Rosebud	2,514	6	71.2	.....	102	9	44	27	46	1.46	.....	0.56	0	4	25	1	5	e.	H. Mackenzie.
Fort Benton	Chouteau	2,630	33																	Jere Sullivan.
Fort Shaw	Cascade	3,500	24	65.8	+ 0.4	93	6†	40	12†	44	2.06	+ 0.94	1.10	0	9	20	4	7	sw.	U. S. Reclamation Service.
Foster	Big Horn	2,800	3	67.7	.....	98	6	40	14	46	0.84	.....	0.35	0	5	19[a]	8[a]	3[a]	nw.	E. K. Bowman.
Garneill	Fergus	5,500	4	56.6	.....	82	7†	31	14	40	4.61	.....	1.15	0	14	10	4	17	sw.	Thos. E. Scally.
Geyser	Cascade	4,147	...	65.0	.....	86	6	42	27†	38	2.39	.....	0.44	0	14	12	16	3	w.	I. G. Finfrock.
Glasgow	Valley	2,092	16	66.4	− 3.9	95	25	38	26	45	1.08	+ 0.08	0.34	0	9	19	7	5	nw.	C. D. Bauer.
Glendive	Dawson	2,069	22	71.8	− 0.9	93	10†	42	16†	50	0.93	− 0.81	0.58	0	2	10	20	1	w.	E. C. Leonard.
Goldbutte	Hill	3,500	5	62.9	.....	89	8†	35	13	43	1.09	.....	0.51	0	7	21	10	0	w.	Joseph Berthelote.
Graham	Custer	.....	7	69.2	.....	100	13	42	31	45	2.06	.....	0.90	0	8	23	4	4	nw.	J. S. Rue.
Great Falls	Cascade	3,350	21	67.6	− 0.7	97	6	41	16	42	2.07	+ 0.46	0.78	0	12	18	13	0	sw.	S. H. Bauman.
Harlowton	Meagher	4,160	5	61.2	.....	92	6	34	15†	50	1.41	.....	0.55	0	5	15	5	11	e.	Joseph Muir.
Havre	Hill	2,505	33	65.3	− 2.8	94	9	40	27	41	1.28	− 0.64	0.51	0	9	18	10	3	sw.	U. S. Weather Bureau.
Hebgen Dam	Gallatin	6,700	7	56.4	+ 2.0	84	8†	30	14	40	4.53	+ 2.47	1.25	0	11	9	14	8	s.	T. L. Carson.
Helena	Lewis and Clark	4,110	33	64.4	− 2.2	92	6	43	14	37	1.47	+ 0.40	0.54	0	11	13	12	6	sw.	U. S. Weather Bureau.
Highwood	Chouteau	4,300	6								2.57	.....	1.20	0	14	18	9	4	sw.	W. S. McCord.
Huntley	Yellowstone	3,037	7	68.0	.....	99	9	42	14	45	1.11	.....	0.54	0	8	22	7	2	w.	U. S. Reclamation Service.
Jordan	Dawson		7																	W. C. Henderson.
Knobles Ranch	Hill		2								2.05	.....	1.00	0	8	22	8	1	w.	F. H. Knoble.
Lewistown	Fergus	4,006	15	61.5	− 2.6	92	10	35	14	43	1.66	− 0.89	0.40	0	9	20	4	7	w.	W. W. Watson.
Lonetree	Chouteau	3,280	7	68.2	.....	94	6†	43	16	45	1.61	.....	0.65	0	6	25	6	0	w.	E. Wilson.
Lothair	Hill	3,301	1	63.0	.....	93	9†	37	14†	51	1.35	.....	0.60	0	4	23	2	6	w.	James H. Whiteley.
Lytle	Chouteau		1	65.7	.....	97	6	38	14	44	0.86	.....	0.19	0	7	22	8	1	sw.	J. F. Fait.
Malta	Valley	2,250	6	66.3	.....	93	9†	36	26	57	0.67	.....	0.15	0	6	23	6	2	sw.	U. S. Reclamation Service.
Medicine Lake	Sheridan	1,969	2	63.6	.....	92	21	34	27	45	1.00	.....	0.90	0	2	25[a]	3[a]	2[a]	w.	J. S. Collier.
Melstone	Musselshell	2,903	1	70.4	.....	96	9†	43	27	40	2.13	.....	1.28	0	8	23	6	2	nw.	W. C. Greening.
Mildred	Custer	2,364	4								1.00	.....	0.48	0	5	16	15	0	se.	Leon B. Clark.
Miles City	....do	2,371	21	72.0	− 0.9	102	9	49	31	45	0.71	− 0.66	0.26	0	9	19	12	0	ne.	U. S. Weather Bureau.
Norris	Madison	4,845	6	66.4	.....	91	6	40	30	36	2.17	.....	1.01	0	10	17	4	10	s.	Madison River Power Co.
Olsen Creek	Jefferson	6,345	4																	Robert Olsen.
Pinegrove	Musselshell		1	59.0	.....	82	9	32	14	36	1.86	.....	0.55	0	9	7	24	0	nw.	G. W. White.
Pipestone Pass	Jefferson	7,000	4								2.11	.....	0.63	0	9	17	12	2	w.	Mrs. T. Keirmeyer.
Plevna	Custer	2,757	1	67.2	.....	94	9	41	27	43	1.76	.....	0.77	0	6	21	8	2	w.	C. C. Conser.
Poplar	Sheridan	2,020	27	68.4	− 2.9	97	21†	41	27	45	1.61	− 0.07	1.30	0	3	23	7	1	se.	H. M. Cosier.
Red Lodge	Carbon	5,548	13	58.4	− 3.4	89	7	31	14	41	2.19	+ 0.85	0.89	0	8	17	8	6	nw.	I. A. Draper.
Renova	Jefferson	4,360	14	61.6	− 3.8	90	7†	32	14	46	2.52	+ 1.47	0.71	0	12	20	5	6	sw.	F. B. Elmer.
Ryegate	Musselshell	3,640	3	64.4	.....	93	9	39	12	45	1.65	.....	0.95	0	5	25	0	6	w.	H. W. Scherfenberg.
Savage	Dawson	1,985	7	67.8	.....	95	21	45	24	45	1.57	.....	0.71	0	5	22	9	0	w.	U. S. Reclamation Service.
Shelby	Teton	3,176	1	64.0	.....	95	6	37	16	44	0.46	.....	0.15	0	6	19	7	5	w.	Olaf C. Fjeld.
Sidney	Dawson		2	66.4	.....	92	21	42	26	46	1.34	.....	0.58	0	3	17	8	6	w.	P. F. Blake.
Springbrook	....do		11	67.3	− 1.1	96	21	40	14	54	0.93	− 0.98	0.54	0	6	19	10	2	s.	Mrs. H. L. Miller.
Sunlit Farm	Blaine	3,170	1	61.9	.....	89	25	32	27	44	1.58	.....	0.51	0	5	18	10	3	w.	C. R. Noyes.
Sun River Canyon	Teton	4,650	1	65.6	.....	93	9	39	15	42	0.81	.....	0.49	0	3	.....	.....	.....	.....	U. S. Reclamation Service.
Three Forks	Gallatin	4,066	2	64.5	.....	95	8	36	14	43	2.42	.....	1.05	0	12	16	9	6	sw.	C. E. Adams.
Utica	Fergus	5,000	18	61.5	− 3.3	87	6	39	27	38	2.14	+ 0.07	0.66	0	8	24	7	0	w.	P. W. Korell.
Valentine	....do	2,800	6	65.5	.....	93	9	40	16	44	4.98	.....	3.51	0	7	23	3	5	w.	B. M. Bean.
Valier	Teton		1	63.3	.....	89	9	40	16	38	0.81	.....	0.35	0	7	16	10	5	w.	Ford, Bacon & Davis.
Wall Rock Mountain	Broadwater	5,600	4								2.56	.....	0.87	0	8	18	10	3	nw.	D. L. Doig.
Wheaton	Musselshell		1	66.2	.....	91	9	40	12	36	1.40	.....	0.48	0	6	15	10	6	sw.	P. O. Balgord.
Whites Ranch	Custer		1																	Glen A. White.
White Sulphur Springs	Meagher	5,280	1	60.8	.....	86	9	36	14	38	1.81	.....	0.66	0	11	5	20	6	.....	P. R. Wild.
Wilder	Fergus		2	66.8	.....	94	21†	38	27	45	1.42	.....	0.40	0	8	22	5	4	w.	J. O. Rogers.
Wolf Creek	Lewis and Clark	3,460	9	66.0	+ 0.8	93	20	36	16	47	1.66	+ 0.13	0.67	0	9	11	16	4	w.	A. J. Reed.
North Dakota.																				
Aplin	Oliver	.....	6	68.5	.....	100	29	39	23	50	1.77	.....	0.53	0	8	17	6	8	nw.	J. C. Hagelbarger.
Arnegard	McKenzie	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. B. Waterman.
Ashley	McIntosh	2,001	16	62.4	− 5.9	96	29	35	24	48	3.87	+ 1.38	1.32	0	6	.....	.....	.....	se.	R. C. Miles.
Beach	Golden Valley	2,576	7	65.6	.....	94	29	41	23	44	1.66	.....	0.62	0	9	19	11	1	nw.	D. J. Steiner.
Belfield	Stark	2,583	2								1.55	.....	0.58	0	5	27	2	2	w.	E. W. Russell.
Berthold Agency	McLean	2,082	19	66.4	− 2.5	96	7	40	9	47	1.41	− 0.57	0.36	0	8	22	6	3	nw.	C. L. Hall.
Bismarck	Burleigh	1,674	39	67.6	− 2.6	98	29	46	13	44	2.72	− 0.58	1.39	0	7	15	13	3	nw.	U. S. Weather Bureau.
Buford	Williams	1,944	34	67.4	− 2.0	93	29	40	26	39	1.37	− 0.33	0.90	0	4	16	10	5	ne.	C. H. McCune.
Carson	Morton	.....	1	67.2	.....	102	7	37	9†	51	1.78	.....	0.60	0	7	22	8	1	nw.	D. J. Basquin.
Dickinson	Stark	2,543	21	66.2	− 1.7	96	7†	41	9	45	1.36	− 0.92	0.33	0	9	14	16	1	se.	L. R. Waldron.
Edgeley	La Moure	1,468	12	65.5	− 2.9	99	29	40	24	46	2.46	− 0.22	0.61	0	7	19	3	9	nw.	O. A. Thompson.
Epping	Williams		5								2.07	.....	1.30	0	6	21	7	3	w.	M. E. Uggen.
Fullerton	Dickey	1,439	15	65.8	− 2.0	99	29	40	24	45	2.53	− 0.74	0.84	0	8	17	9	5	nw.	F. O. Alin.
Garrison	McLean	1,901	18	65.7	− 2.2	97	29	41	9	44	1.73	− 0.62	0.58	0	7	15	13	3	nw.	G. L. Robinson.
Haley	Bowman		5	.....	.....	102°	1	44°	12	40°	3.37	.....	0.70	0	11	.....	.....	.....	.....	A. O. Lawrence.
Hettinger	Adams	2,253	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. R. Lanxon.
Howard (near)	Divide	2,275	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. P. Amsbaugh.
Jamestown	Stutsman	1,390	21	65.7	− 2.5	98	30	44	24	40	4.04	+ 1.22	1.00	0	14	17	3	11	w.	Thos. Pettigrew.
Lamoine	Kidder	.....	5	63.6	.....	96	28	41	13†	44	3.03	.....	1.01	0	6	.....	.....	.....	nw.	E. V. Virgin.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota—Contd.																				
McHenry (near)	Eddy		3	64.2	.....	93	29	42	31	39	2.43	.....	0.49	0	11	19	6	6	nw.	P. E. Truden.
Marmarth (near)	Bowman		4	67.0	.....	95	7	42[c]	31	42[c]	1.27	.....	0.49	0	10	13	10	8	se.	S. P. Grane.
Marstonmoor	Stutsman		4	64.1[c]	.....	91[c]	29	39[c]	24	42[c]	3.90	.....	1.09	0	8	14	13	4	nw.	H. H. McCumber.
Medora	Billings	2,225	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. Steadman.
Melville	Foster	1,590	15	67.1[d]	− 0.6	98[d]	29	42[d]	2	46[d]	4.16	+ 1.33	2.00	0	6	.....	.....	.....	nw.	J. P. Kidder.
Mott	Hettinger		6	68.4	.....	100	7	41	26†	47	1.50	.....	0.57	0	9	17	7	7	w.	O. H. Opland.
Napoleon	Logan	1,955	21	64.8	− 3.3	101	29	38	24	47	2.31	− 0.17	0.80	0	9	16	6	9	s.	C. J. Hoof.
New England	Hettinger	2,400	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Connolly.
New Rockford	Eddy	1,531	2	65.0	.....	95	29	43	24	40	2.48	.....	0.48	0	9	19	7	5	w.	J. V. M. Sundberg.
New Salem	Morton	2,163	8	66.4	.....	99	7	41	14	42	2.33	.....	0.98	0	6	.....	.....	.....	nw.	J. Christiansen.
Orange	Adams		4	67.0	.....	100	7	41	25†	51	0.89	.....	0.58	0	3	.....	.....	.....	se.	J. E. Goforth.
Ranger	Billings			.....	.....	.....	.....	.....	.....	.....	1.61	.....	0.40	0	6	24	2	5	nw.	R. E. Sheriff.
Ronda	Mercer			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. A. Crandall.
Steele	Kidder	1,857	16	69.3	+ 0.7	98	29	51	31	33	4.96	+ 2.30	1.85	0	9	20	10	1	w.	H. S. Wood.
Turtle Lake	McLean		1	66.4	.....	99	29	42	9†	45	2.14	.....	0.68	0	10	17	6	8	se.	E. G. Ranum.
Washburn	do	1,734	15	67.2	− 1.3	98	6	45	13	40	2.84	+ 0.54	1.50	0	7	.....	.....	.....	w.	W. R. Peterson.
Williston	Williams	1,875	34	65.8	− 3.6	92	29	42	27	39	2.43	+ 0.40	1.19	0	5	16	10	5	n.	U. S. Weather Bureau.
South Dakota.																				
Aberdeen	Brown	1,300	23	69.4	− 1.6	101	29	45	13	45	4.52	+ 1.36	1.35	0	10	19	2	10	ne.	D. G. Gallett.
Academy	Charles Mix		14	72.6	− 1.1	99	29	50	24	35	3.92	+ 0.35	0.95	0	10	19	10	2	s.	I. T. Lothrop.
Alexandria	Hanson	1,352	25	72.7	− 0.1	100	29	50	20†	39	2.44	− 0.80	1.18	0	6	15	15	1	nw.	C. H. Stillwell.
Ardmore	Fall River	3,557	2	71.0	.....	102	8†	38	31	47	1.78	.....	0.77	0	10	19	6	6	e.	U. S. Experiment Station.
Armour	Douglas	1,521	18	73.0	− 0.2	102[b]	29	47[b]	21†	47[b]	3.35	+ 0.07	1.28	0	7	17	10	4	n.	T. J. Markey.
Bellefourche	Butte	3,000	5	69.0	.....	99	7	43	31	42	0.63	.....	0.28	0	4	5	20	6	se.	U. S. Reclamation Service.
Blunt	Hughes	1,621	....	.....	.....	.....	.....	.....	.....	.....	5.07	.....	2.76	0	7	10	16	5	nw.	James A. Howard.
Britton	Marshall	1,354	....	68.6	.....	102	29	45	13†	44	2.70	.....	0.58	0	11	17	8	6	w.	W. S. Given.
Brookings	Brookings	1,636	24	69.4	− 0.2	94	29	45[a]	13†	35[a]	2.99	+ 0.56	0.87	0	8	16	8	7	se.	Experiment Station.
Bryant	Hamlin	1,846	1	.....	.....	.....	.....	.....	.....	.....	4.01	.....	0.90	0	12	10	20	1	nw.	E. D. Landon.
Camp Crook	Harding	3,000	20	68.7	− 0.8	98	7	43	25	47	0.67	− 1.08	0.15	0	8	21	7	3	nw.	U. S. Forest Service.
Canton	Lincoln	1,248	18	71.2	− 0.7	96	30	48	10†	37	3.61	− 0.28	1.46	0	7	30	0	1	se.	John H. Holsey.
Castlewood	Hamlin	1,685	8	68.1	.....	93	29	45	23†	37	4.48	.....	1.51	0	11	11	5	15	n.	M. N. Bradley.
Centerville	Turner	1,229	16	73.5	.....	98	30	49	21	37	2.26	− 2.22	1.03	0	7	19	12	0	se.	Frank Williams.
Clark	Clark	1,779	21	67.7	− 1.9	92	29	45	13	34	3.68	+ 0.78	1.27	0	10	11	15	5	nw.	O. H. La Craft.
Cottonwood	Stanley	2,414	5	77.0	.....	104	2†	44	31	44	0.81	.....	0.29	0	6	15	10	6	nw.	Experiment Station.
Custer	Custer	5,316	1	.....	.....	.....	.....	.....	.....	.....	2.29	.....	0.66	0	10	17	12	2	sw.	R. P. Imes.
Daviston	Perkins		3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dyson Byers.
Deadwood	Lawrence	4,535	4	65.4	.....	92	7	37	31	43	0.45	.....	0.30	0	2	24	5	2	.....	R. E. Grimshaw.
Deerfield	Pennington	6,000	4	.....	.....	.....	.....	.....	.....	.....	1.40	.....	0.35	0	11	17	8	6	sw.	Frank E. Miller.
De Smet	Kingsbury	1,726	20	68.4	− 2.0	93	29	45	13	37	5.53	+ 2.94	1.45	0	10	27	4	0	n.	W. E. White.
Dowling	Stanley	2,250	4	73.8	.....	103	7	50	30	42	1.05	.....	0.30	0	6	16	13	2	se.	M. P. Dowling.
Dumont	Lawrence	6,195	4	.....	.....	.....	.....	.....	.....	.....	0.71	.....	0.25	0	6	19	9	3	sw.	A. B. Wood.
Eagle Butte	Dewey	2,415	1	71.9	.....	103	7	47	23†	43	1.56	.....	0.45	0	7	23	8	0	.....	Dr. John F. Chandler.
Eales	Potter		2	.....	.....	.....	.....	.....	.....	.....	1.62	.....	0.47	0	9	19	10	2	nw.	A. H. Peterson.
Elk Mountain	Custer	4,700	4	.....	.....	.....	.....	.....	.....	.....	2.67	.....	0.85	0	11	13	10	8	se.	James E. Blaine.
Ellingson	Perkins		1	67.4	.....	100	7	**44**	23	43	1.84	.....	0.52	0	10	17	12	2	nw.	Carl G. Moen.
Englewood	Lawrence	5,723	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. P. Wagner.
Eureka	McPherson	1,884	4	68.4	.....	101	29	43	**13**	48	2.16	.....	0.90	0	10	16	15	0	se.	Experiment Station.
Fairfax	Gregory		9	74.6	.....	100	8†	50	24†	38	2.20	.....	1.17	0	6	26	5	0	ne.	U. G. Stevenson.
Faith	Meade	2,560	....	72.4	.....	103	7	44	31	40	1.70	.....	1.24	0	8	3	22	6	nw.	Robert R. Saul.
Faulkton	Faulk	1,595	18	71.4	+ 0.7	103	29	46	13	40	2.53	− 0.06	0.63	0	13	22	7	2	ne.	Miss Belle Talcott.
Flandreau	Moody	1,565	23	69.8	+ 0.1	93	29	46	24	38	4.21	+ 1.31	1.30	0	9	13	7	11	e.	D. R. McLean.
Forestburg	Sanborn	1,231	21	73.0	+ 1.3	102	29	47	13	40	3.96	+ 1.15	0.89	0	**10**	17	10	4	nw.	S. S. Judy.
Fort Meade	Meade	3,624	30	70.1	− 1.6	101	8	48	27	38	0.25	− 2.04	0.25	0	1	28	3	0	se.	Post Hospital.
Frederick	Brown	1,371	4	68.4[f]	.....	102[f]	29	45[f]	20†	50[f]	1.87	.....	0.69	0	6	.....	.....	.....	se.	J. E. Jeffers.
Goldfield	Meade	3,000	....	73.0	.....	103	7	45	**30**	41	2.27	.....	1.27	0	6	14	15	2	nw.	A. M. Alexander.
Greenmont	Lawrence	6,430	4	.....	.....	.....	.....	.....	.....	.....	0.74	.....	0.44	0	3	10	20	1	w.	H. C. Hoffbuhr.
Greenwood	Charles Mix		19	75.8	+ 1.1	103	26	50	24	42	1.94	− 1.61	0.85	0	7	22	9	0	s.	T. C. Williamson.
Hardingrove	Stanley		1	73.5[e]	.....	102[e]	2†	48[e]	31	53[e]	0.86	.....	0.40	0	5	9	16	6	nw.	Mrs. Laura Sinclair.
Hardy Ranger Station	Lawrence	6,600	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rufus J. Pilcher.
Harveys Ranch	do	6,282	3	.....	.....	.....	.....	.....	.....	.....	1.79	.....	0.67	0	7	15	10	6	w.	Jerome Harvey.
Hermosa	Custer	3,278	7	70.0	.....	100	7	42	30	42	1.66	.....	0.68	0	7	21	6	4	s.	S. M. Booth.
Highmore	Hyde	1,890	20	72.4	− 0.6	101	29	46	31	41	1.79	− 0.71	0.72	0	7	14	12	5	se.	Experiment Station.
Hopewell	Stanley		3	70.0	.....	104	29	48	31	46	1.43	.....	0.79	0	6	13	13	5	ne.	E. R. Myers.
Hot Springs	Fall River	3,443	....	71.8	.....	98	7	40	31	44	2.29	.....	1.50	0	10	11	9	11	.....	John S. Goodrell.
Howard	Miner	1,564	21	68.2	− 1.8	96	**29**	44	13	38	5.17	+ 2.08	2.00	0	10	10	20	1	ne.	J. J. Cox.
Howell	Hand		11	70.2	− 0.3	102	29	44	10†	48	2.76	+ 0.44	1.35	0	9	16	14	1	se.	M. A. Shuster, jr.
Huron	Beadle	1,306	31	71.0	− 0.5	99	29	50	31	38	3.82	+ 0.88	1.51	0	11	16	13	2	n.	U. S. Weather Bureau.
Ipswich	Edmunds	1,530	16	68.2	− 2.4	103[a]	29	44[a]	24	49[a]	3.90	+ 1.54	1.60	0	12	12	18	1	nw.	H. J. Dailey.
Kadoka	Stanley	2,467	4	76.2[f]	.....	105[f]	29	43[f]	31	50[f]	0.63	.....	0.25	0	7	.....	.....	.....	.....	Rev. Glenn H. Shaw.
Kennebec	Lyman	1,689	20	73.6[d]	+ 0.6	103[a]	29	48[b]	24†	41[c]	2.41	+ 0.32	1.05	0	6	22	8	1	nw.	R. C. Van Horn.
Kimball	Brule	1,788	27	71.6	− 1.2	98	29	49	31	35	3.81	+ 0.94	1.20	0	8	24	6	1	nw.	G. D. Rose.
La Delle	Spink	1,400	16	69.6	− 1.9	98	29	45	31	39	4.42	+ 0.70	1.48	0	10	13	9	9	se.	E. L. Ebbert.
Lead	Lawrence	5,200	4	65.8	.....	89	7†	44	27	40	0.61	.....	0.25	0	5	7	19	5	nw.	E. F. Irwin.
Lemmon	Perkins	2,345	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. C. Foot.
Marion	Turner	1,447	12	74.1	+ 2.1	98	29	51	24	37	2.61	− 1.27	1.28	0	6	12	18	1	se.	M. H. Dains.
Marston	Sully		5	70.1	.....	99	7	45	31	45	3.02	.....	1.76	0	6	11	13	7	nw.	J. W. Kozel.
Meadow	Perkins			67.6	.....	97	7	45	9†	40	0.92	.....	0.36	0	6	18	10	3	nw.	Hillard Wybenga.
Mellette	Spink	1,300	18	69.2	− 2.2	101	29	43	24	43	4.31	+ 1.51	1.27	0	11	20	11	0	se.	Frank A. Howe.
Menno	Hutchinson	1,325	16	75.0	+ 2.4	102[b]	26	49[b]	25	52[b]	2.09	− 1.57	1.12	0	6	19	11	1	se.	J. S. Headley.
Milbank	Grant	1,148	22	67.6	− 2.3	97	29	45	10	40	3.11	+ 0.34	1.20	0	9	17	7	7	nw.	Miss Mary Patridge.
Mitchell	Davison	1,312	19	71.8	+ 0.3	100	29	51	13†	43	3.12	− 0.18	1.35	0	10	16	15	0	s.	C. W. Downey.
Mobridge	Walworth		2	70.4	.....	104	7	48	24	46	1.12	.....	0.85	0	4	23	6	2	ne.	Thomas J. Morris.
Murdo	Lyman	2,300	5	74.4	.....	104	7	50	31	40	2.55	.....	2.00	0	3	20	11	0	e.	L. C. Bode.
Oelrichs	Fall River	3,339	21	70.9	− 1.1	104	13	46	5	54	1.53	− 0.80	0.50	0	7	6	23	2	ne.	J. E. Strouse.
Onaka	Faulk	1,600	1	.....	.....	.....	.....	.....	.....	.....	3.47	.....	1.32	0	9	21	6	4	se.	H. P. Camp.
Onida	Sully	1,921	....	.....	.....	.....	.....	.....	.....	.....	2.19	.....	0.58	0	9	15	13	3	nw.	E. E. Heywood.
Orman	Butte	2,920	7	71.8	.....	99	7	50	31	41	0.75	.....	0.33	0	5	23	6	2	nw.	U. S. Reclamation Service.
Ottumwa	Stanley		5	73.2	.....	105[a]	2	44[a]	13	47[a]	1.32	.....	0.65	0	4	23	8	0	nw.	J. W. Bretz.
Parkston	Hutchinson	1,400	1	.....	.....	.....	.....	.....	.....	.....	2.32	.....	1.30	0	5	23	8	0	.....	W. C. Rempfer.
Pearl Creek	Beadle			.....	.....	.....	.....	.....	.....	.....	5.68	.....	1.19	0	10	.....	.....	.....	.....	Charles Miner.
Pierre	Hughes	1,572	21	74.8	− 0.4	102	29	56	13	36	2.12	− 0.23	1.00	0	6	17	9	5	e.	U. S. Weather Bureau.
Pine Ridge	Shannon		7	70.1	.....	101	2	35	31	49	1.97	.....	0.45	0	11	13	11	7	s.	W. A. Spencer.
Plankinton	Aurora	1,528	19	.....	.....	.....	.....	.....	.....	.....	4.45	+ 1.51	1.27	0	9	15	15	1	ne.	W. G. Andrews.
Pollock	Campbell		7	68.8	.....	104	29	**41**	24	**56**	2.06	.....	0.68	0	10	14	10	7	nw.	J. H. Jones.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
South Dakota—Contd.																			
Rapid City	Pennington	3,251	25	68.8	− 1.4	97	7	46	12	36	0.62	− 1.93	0.21	0	7	13	11	7	w.	U. S. Weather Bureau.
Redfield	Spink	1,295	15	71.4	+ 1.2	104	29	48	13†	45	3.45	+ 0.52	1.76	0	11	17	3	11	nw.	A. S. Hall.
Rochford	Pennington	5,228	3	.....	.....	.....	.....	.....	.....	.....	1.25	.....	0.57	0	9	16	11	4	nw.	Mrs. M. E. Deffenbaugh.
Rosebud	Todd	2,600	19	70.0	− 3.4	100[a]	7	43[a]	31	45[a]	3.35	+ 0.72	1.49	0	10	7	22	2	nw.	W. M. Ege.
Roslyn	Day	.....	7	66.4	.....	94	29	44	24	36	3.38	.....	1.28	0	10	15	11	5	nw.	O. O. Floren.
Selby	Walworth	.....	5	71.8	.....	100[a]	29	46[a]	23	46[a]	1.32	.....	0.43	0	6	22	7	2	nw.	Miss Gertrude Hall.
Sioux Falls	Minnehaha	1,400	22	72.0	+ 0.2	95	15†	51	21	35	3.18	− 0.26	1.08	0	16	15	6	10	s.	J. H. Bechtold.
Sisseton	Roberts	1,202	7	68.4	.....	96	29	50	2†	34	2.43	.....	1.02	0	10	16	4	11	nw.	George Gray.
Sorum	Perkins	.....	2	69.0	.....	98	7	43	9	43	2.78	.....	0.80	0	9	10	13	8	nw.	M. S. Eberhart.
Spearfish	Lawrence	3,647	24	71.0	+ 1.3	97	13	49	30	39	0.48	− 1.59	0.44	0	2	19	11	1	se.	A. E. Johnson.
Stephan	Hyde	1,840	9	70.8	.....	96	8	47	31	41	3.34	.....	1.26	0	7	16	10	5	se.	Rev. A. Mattingly.
Tama	Meade	.....	3	.....	.....	105	7	.....	.....	.....	2.00	.....	1.20	0	4	22	8	1	nw.	E. J. Lehman.
Timber Lake	Dewey	2,163	1	72.2	.....	106	7	40	23	47	0.71	.....	0.27	0	5	10	20	1	w.	W. E. Prann.
Tyndall	Bonhomme	1,418	16	75.0	+ 0.9	98	26	50	21†	35	2.17	− 1.32	1.26	0	11	16	14	1	nw.	F. F. Chladek.
Vale	Butte	2,765	5	70.7	.....	101	7	41	31	45	0.19	.....	0.11	0	3	4	21	6	.....	U. S. Reclamation Service.
Vermilion	Clay	1,222	12	76.4	+ 2.0	103	30	50	24	39	1.32	− 3.09	0.85	0	5	29	2	0	s.	Prof. E. C. Perisho.
Waters Ranch	Lawrence	4,000	3	.....	.....	.....	.....	.....	.....	.....	1.01	.....	0.37	0	5	17	6	8	nw.	George Waters.
Watertown	Coddington	1,735	19	67.3	− 0.2	92	29	44	13	35	3.77	+ 0.54	1.00	0	10	11	15	5	ne.	Robert Q. Wood.
Wentworth	Lake	.....	20	69.8	− 0.6	91[a]	26†	49[a]	23†	35[a]	5.36	+ 2.44	1.42	0	11	21	4	6	n.	R. C. Zimmerman.
White Lake	Aurora	1,646	4	.....	.....	.....	.....	.....	.....	.....	2.49	.....	1.46	0	5	22	8	1	ne.	Mrs. G. A. Rogers.
Winner	Tripp	2,000	1	74.3	.....	100[b]	29	49[b]	30	39[b]	2.92	.....	1.12	0	10	18	10	3	se.	J. W. Barnum.
Wood	Mellette	.....	.....	74.2	.....	102	2†	45	31	43	3.84	.....	2.11	0	9	18	3	10	s.	Fred E. Kirch.
Yankton	Yankton	1,234	39	74.8	+ 0.2	98	26	50	24	36	1.82	− 1.70	0.97	0	9	12	17	2	e.	U. S. Weather Bureau.
Minnesota.																				
Pipestone	Pipestone	1,710	12	70.0	+ 0.6	91	29	48	23	33	4.55	+ 1.40	1.75	0	12	13	15	3	n.	A. L. Doan.
Colorado.																				
Arriba	Lincoln	5,243	7	71.0	.....	100	13	45	12†	43	3.04	.....	1.22	0	8	23	5	3	s.	C. A. Creel.
Auldhurst	Teller	8,500	3	.....	.....	.....	.....	.....	.....	.....	2.08	.....	0.84	0	11	11	15	5	s.	Harry Dunmire.
Bennett (near)	Arapahoe	5,484	5	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.51	0	7	23	7	1	s.	J. F. Egelhoff.
Boulder	Boulder	5,347	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. J. A. Hunter.
Burlington	Kit Carson	4,160	10	76.0	+ 3.7	106	13	49	31	47	0.79	− 2.33	0.25	0	9	14	16	1	se.	W. P. Davis.
Cassells	Park	8,445	3	.....	.....	.....	.....	.....	.....	.....	2.47	.....	0.75	0	8	21	5	5	e.	Harriet M. Cassell.
Castle Rock	Douglas	6,220	21	66.6	− 1.0	97	12	40	4	51	2.75	+ 0.07	0.77	0	9	11	6	14	nw.	Thos. P. Vaughan.
Cheesman	Jefferson	6,890	10	66.0	+ 0.3	90	7	44	26	41	1.83	− 1.55	0.67	0	7	19	8	4	s.	J. G. Thornburg.
Cheyenne Wells	Cheyenne	4,279	21	75.6	+ 2.0	104	13	49	28	46	0.99	− 3.10	0.45	0	5	28	1	2	s.	J. W. Adams.
Corona	Grand	11,660	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Weather Bureau.
Denver	Denver	5,272	41	71.6	− 0.2	99	13	50	28	41	1.76	+ 0.14	0.89	0	11	12	13	6	sw.	Do.
Edgewater	Jefferson	5,450	5	69.0	.....	96	2	45	12†	44	2.54	.....	0.98	0	10	18	8	5	.....	N. P. Levin, M. D.
Estes Park Fish Hatch.	Larimer	8,000	4	.....	.....	.....	.....	.....	.....	.....	2.92	.....	0.70	0	13	6	10	15	w.	G. H. Thomson.
Fort Collins	....do.	4,985	34	66.8	− 1.7	94	2†	42	12†	46	2.63	+ 0.71	1.19	0	12	8	19	4	nw.	Colorado Agricultural Colleg
Fort Lupton	Weld	4,907	3	.....	.....	.....	.....	.....	.....	.....	3.30	.....	1.18	0	10	8	14	9	w.	C. B. Benedict.
Fort Morgan	Morgan	4,319	15	74.2	+ 1.3	100	2	45	12	50	5.61	+ 3.55	3.25	0	6	24	6	1	se.	Great Western Sugar Co.
Frances	Boulder	9,300	8	58.6	.....	82	7	39	12†	36	4.88	.....	1.01	0	16	10	18	3	w.	C. W. Barry.
Frys Ranch	Larimer	7,500	3	59.2	.....	88	6	32	12	49	3.23	.....	0.63	0	12	18	10	3	w.	Norman W. Fry.
Georgetown	Clear Creek	8,550	11	.....	.....	.....	.....	.....	.....	.....	4.55	+ 2.35	0.64	0	14	3	19	9	.....	H. L. Corbett.
Greeley	Weld	4,649	22	70.4	− 0.3	100	2	44	12†	47	2.03	+ 0.15	0.84	0	7	23	5	3	e.	Burton Reynolds.
Grover (near)	....do.	5,076	9	67.6	.....	97	7†	40	31	46	2.77	.....	1.51	0	8	10[a]	14[a]	6[a]	s.	D. M. Porter.
Hartsel	Park	8,892	4	.....	.....	.....	.....	.....	.....	.....	3.05	.....	0.85	0	13	16	5	10	nw.	Emily Kleinknecht.
Hawthorne	Boulder	6,000	4	.....	.....	.....	.....	.....	.....	.....	2.59	.....	1.04	0	11	15	12	4	.....	B. E. Chesebro.
Holyoke (near)	Phillips	3,745	17	67.6[j]	− 4.4	105	13	34[k]	31	58[k]	3.58	+ 1.11	1.20	0	6	17	12	2	se.	A. C. Cauble.
Idaho Springs	Clear Creek	7,543	13	63.4	+ 0.7	87	3†	41	28	39	3.09	+ 0.27	0.79	0	13	3	25	3	e.	J. J. Willis.
Julesburg	Sedgwick	3,465	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Great Western Sugar Co.
Kersey	Weld	4,571	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Laporte	Larimer	5,053	22	.....	.....	.....	.....	.....	.....	.....	2.45	+ 0.59	1.35	0	8	.....	.....	.....	.....	P. A. Taft.
Le Roy (near)	Logan	4,380	24	.....	.....	.....	.....	.....	.....	.....	2.96	+ 0.88	1.23	0	8	8[a]	20[a]	2[a]	ne.	Chas. Green.
Longmont	Boulder	4,950	12	70.6	+ 0.6	100[a]	1	42[a]	11	51[a]	2.28	+ 0.75	0.84	0	11	9	21	1	ne.	Great Western Sugar Co.
Longs Peak (near)	Larimer	8,600	18	54.9	+ 0.7	81[r]	6	29	12	43	2.92	− 0.03	0.55	0	13	22	4	5	s.	Enos A. Mills.
Merino	Logan	.....	....	.....	.....	.....	.....	.....	.....	.....	2.33	.....	1.57	0	6	18	11	2	.....	Great Western Sugar Co.
Moraine	Larimer	7,775	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. A. Chapman.
Platte Canon	Jefferson	5,492	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Denver Union Water Co.
St. Cloud	Larimer	7,750	10	.....	.....	.....	.....	.....	.....	.....	2.66	+ 0.65	0.98	0	9	12	8	11	w.	Miss Emma S. Cornelison.
Sedgwick	Sedgwick	3,539	5	72.2	.....	105	13	38	31	47	2.59	.....	1.00	0	6	20	10	1	se.	Edwin Lewis, M. D.
Silver Lake	Boulder	10,500	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	City Engineer, Boulder.
Spicer (near)	Jackson	8,700	3	60.0	.....	89	6	32	12	45	1.72	.....	0.38	0	8	17	9	5	.....	Frank W. Murphy.
Sterling	Logan	3,892	4	68.8	.....	100	7	40	31	55	0.59	.....	0.19	0	6	8	14	9	se.	Great Western Sugar Co.
Waterdale	Larimer	5,206	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. H. Boothroyd.
Wray	Yuma	3,512	17	76.0	+ 1.8	105	13	45	31	46	1.35	− 1.18	0.78	0	3	21	9	1	se.	J. C. Tuomey.
Yuma	....do.	4,138	22	.....	.....	.....	.....	.....	.....	.....	1.30	− 1.57	0.68	0	8	28	1	2	ne.	Matthew Harr.
Nebraska.																				
Ainsworth	Brown	2,521	8	73.6	.....	97	13	50	25†	42	3.64	.....	1.45	0	7	2	26	3	sw.	John M. Cotton.
Albion	Boone	1,747	17	75.0[i]	+ 2.1	103[i]	15	45[i]	24	44[i]	1.79	− 1.29	0.56	0	6	.....	.....	.....	.....	F. M. Weitzel.
Alliance	Boxbutte	3,968	21	67.8	− 3.5	99	13	37	31	46	5.65	+ 2.98	1.95	0	6	16	13	2	nw.	J. A. Keegan.
Alma	Harlan	1,939	18	77.8	+ 2.0	107	16	48	12	42	0.33	− 2.88	0.20	0	4	24	3	4	s.	W. A. Sharpnack.
Arcadia	Valley	2,186	15	.....	.....	.....	.....	.....	.....	.....	2.40	− 2.26	0.75	0	7	21	6	4	se.	J. L. Owen.
Arden	Wheeler	.....	3	.....	.....	.....	.....	.....	.....	.....	1.43	.....	0.52	0	8	29	2	0	s.	A. E. Johns.
Ashland	Saunders	1,100	30	79.9	+ 3.2	109	16	55	19	37	3.45	− 1.16	1.94	0	11	21	10	0	s.	Dr. A. S. Mansfelde.
Ashton	Sherman	2,061	21	.....	.....	.....	.....	.....	.....	.....	2.01	− 2.02	0.78	0	5	22	0	9	sw.	F. Rein.
Atkinson	Holt	2,108	8	73.9	.....	98	8†	51	31	41	3.08	.....	1.30	0	5	.....	.....	.....	.....	C. J. Wilson.
Auburn	Nemaha	1,051	23	80.4	+ 4.3	111	16	52	21	47	0.82	− 3.55	0.56	0	7	23	6	2	s.	J. R. Huffman.
Aurora	Hamilton	1,792	18	.....	.....	.....	.....	.....	.....	.....	2.88	− 0.95	0.88	0	8	18	6	7	se.	A. D. Travis.
Beatrice	Gage	1,235	24	79.8	+ 3.1	105	16†	54	21	35	0.62	− 3.82	0.30	0	6	21	5	5	se.	H. E. Palmer.
Beaver City	Furnas	2,147	22	79.8	+ 3.4	106	7	53	12	41	1.80	− 1.97	1.00	0	7	24	4	3	se.	T. M. Davis.
Bellevue	Sarpy	1,210	32	79.2	+ 3.3	105	14	57	19	34	1.12	− 2.96	0.50	0	5	24	5	2	se.	A. A. Tyler.
Benkelman	Dundy	2,968	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. D. Druliner.
Bertrand	Phelps	2,515	5	.....	.....	.....	.....	.....	.....	.....	1.53	.....	0.61	0	7	21	8	2	s.	W. F. Dobbin.
Blair	Washington	1,122	18	77.4	+ 2.9	103	16	51	24	42	2.08	− 1.95	0.50	0	8	27	3	1	nw.	D. C. Van Deusen.
Blake	Garfield	.....	1	.....	.....	.....	.....	.....	.....	.....	2.25	.....	0.64	0	10	22	9	0	s.	H. C. Mead.
Bloomfield	Knox	.....	7	74.7	.....	100	8†	47	23	43	2.51	.....	1.08	0	9	9	22	0	s.	Dr. L. C. Bleick.
Bradshaw	York	1,715	16	.....	.....	.....	.....	.....	.....	.....	2.22	− 2.56	1.10	0	7	17	14	0	.....	E. C. Roggy.
Brewster	Blaine	.....	1	.....	.....	.....	.....	.....	.....	.....	1.81	.....	0.41	0	12	20	9	2	se.	W. S. Turnbull.
Bridgeport	Morrill	3,658	17	72.1	+ 0.5	104	2†	39	12	59	3.27	+ 0.96	0.70	0	10	14	15	2	se.	R. H. Willis.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nebraska—Continued.																				
Broken Bow	Custer	2,477	19	73.6	+ 0.3	101	14	42	31	49	2.11	− 2.01	0.75	0	7	27	0	4	n.	R. V. McCall.
Bruning	Thayer	1,583	2								0.53		0.33	0	4	24	5	2	sw.	Henry Middendorf.
Burge	Cherry	2,674	6	73.0		102	7	40	31	51	3.08		1.35	0	4	20	8	3	se.	H. A. Davis.
Burwell	Garfield	2,180	20								2.41	− 0.92	0.66	0	9					W. L. McMullen.
Butte	Boyd		8	74.9		102	8	49	31	42	2.13		0.90	0	5	23	8	0	nw.	W. Whitla.
Cairo	Hall	1,951	5								2.35		0.81	0	6					Elliott Harrison.
Callaway	Custer	2,555	21	76.2	+ 2.8	102	7	45	12	45	1.68	− 1.21	0.71	0	4	14	13	4	s.	J. H. Evans.
Cambridge	Furnas	2,258	7	77.9		108	7	50	12	44	2.66		1.10	0	7	23	5	3	s.	Chas. Jensen.
Columbus	Platte	1,442	20	76.4	+ 3.0	103	16	50	24	39	2.50	− 1.21	1.22	0	8	20	9	2	ne.	A. L. Rush.
Crete	Saline	1,368	31	81.4	+ 5.6	110	16	52	21	38	0.94	− 3.18	0.45	0	5	25	3	3	s.	Doane College.
Culbertson	Hitchcock	2,565	27	79.4	+ 2.8	109	7	48	31	47	1.60	− 1.27	0.90	0	4	16	10	5	se.	Homer L. Nye.
Curly	Sioux		5	66.4[d]		101	7	33	31	49[d]	2.35		0.63	0	8				se.	A. E. Hann.
Curtis	Frontier	2,553	18	76.4	+ 0.8	101	15	47	12	43	6.33	+ 2.84	2.56	0	10	21	6	4	se.	Dr. S. R. Razee.
Dalton	Cheyenne	4,273	1								5.54		2.60	0	7	21	5	5		J. C. Frandsen.
David City	Butler	1,619	24	77.2	+ 3.3	100	4	55	12	33	4.34	+ 0.25	1.12	0	10	19	10	2	se.	S. Clingman.
Du Bois	Pawnee	1,074	8								0.13		0.13	0	1	23	6	2	s.	O. M. Backus.
Dumas	Garfield		5	72.7		96	26†	51	12†	37[a]	1.77		0.40	0	8	30	1	0	s.	Emile Raes.
Elm Creek	Buffalo	2,268	6								1.26		0.60	0	3					E. L. Sutton.
Elsie	Perkins	3,382	5								2.77		1.16	0	11					J. F. Brittain.
Ericson (near)	Garfield	2,029	21								2.12	− 1.11	0.93	0	7	18	10	3	nw.	J. A. Bodyfield.
Ewing	Holt	1,888	21	76.8		105	29	46	24	47	1.40	− 1.85	0.64	0	8					G. H. Benson.
Exeter	Fillmore	1,607	2								0.85		0.65	0	2					Frank Ainsworth.
Fairbury	Jefferson	1,316	39	82.1	+ 4.9	111	16	51	21	43	0.20	− 4.34	0.08	0	3	22	7	2	s.	W. F. Cramb.
Fairmont	Fillmore	1,641	19	79.3	+ 4.2	108	16	52	21	41	1.19	− 2.71	0.72	0	4	18	13	0	s.	C. B. & Q. R. R. Co.
Falls City	Richardson	898	19	82.6	+ 5.0	110	16	54	12†	43	0.64	−4.08	0.43	0	4	28	3	0	se.	Dr. J. C. Yutzy.
Fort Robinson	Dawes	3,764	30	69.4	− 1.5	98	7	37	31	52	3.51	+ 1.38	1.10	0	7	24	2	5	n.	Post surgeon.
Franklin	Franklin	1,820	20	81.8	+ 5.8	110	16	48	12	47	0.30	− 3.17	0.25	0	2	22	8	1	se.	A. R. Peck.
Fremont	Dodge	1,203	34	78.4	+ 3.3	102	16	53	21	43	2.28	− 1.90	0.73	0	7	22	7	2	se.	Ernest Hahn.
Fullerton	Nance	1,629	12	76.4		102	15	50	21†	40	2.47	− 1.57	0.75	0	6	27	4	0	s.	Dr. F. W. Johnson
Geneva	Fillmore	1,633	23	81.6	+ 5.5	110	16	51	21	42	0.96	− 2.81	0.35	0	4	25	4	2	sw.	F. M. Flory.
Genoa	Nance	1,584	38	73.8	− 1.1	103	15	40	21†	49	2.33	− 1.69	0.82	0	6	22	5	4	n.	F. W. Parsons.
Gordon	Sheridan	3,550	12	70.0[a]		100[a]	7	34[a]	31	50	1.95	− 0.55	0.54	0	6					G. F. Williams.
Gosper	Gosper		12								2.03	− 1.24	0.90	0	7	26	3	2	s.	E. H. Stoll.
Gothenburg	Dawson	2,557	19	74.6	+ 0.2	104	7	48	12†	43	2.87	+ 0.02	1.40	0	11	23	7	1	se.	S. S. Kaufman.
Grand Island	Hall	1,860	21	79.8	+ 4.2	105	4†	55	21†	38	2.08	− 1.94	0.62	0	9	17	11	3	s.	E. A. Barnes.
Grant	Perkins	3,405	10	74.5		109	13	41	31	51	1.72	− 1.86	1.02	0	7				se.	Anson K. Holmes.
Greeley	Greeley	2,021	18	75.0		100	15	50	12†	32	1.68	− 1.85	0.41	0	9	19	12	0	se.	W. E. Morgan.
Guide Rock	Webster	1,646	13								0.45	− 4.94	0.22	0	4	16	13	2	s.	J. S. Marsh.
Haigler	Dundy	3,258	18								0.73	− 1.94	0.73	0	1					J. L. Pember.
Halsey	Thomas	2,695	11	74.2	+ 1.4	101	13	46	4	46	3.09	− 0.64	0.71	0	10	25	6	0	se.	Bureau of Forestry.
Hartington	Cedar	1,309	22	74.6	+ 1.7	101	30	50	24	38	2.48	− 0.82	1.10	0	4	12	14	5	nw.	D. E. Ewing.
Harvard	Clay	1,812																		Bert Gregg.
Hastings	Adams	1,932	23	79.1	+ 3.6	108	16	53	12	45	1.93	− 1.76	0.95	0	5	28	3	0	sw.	C. B. & Q. R. R. Co.
Hayes Center	Hayes		20	76.4		107	15	47	28	45	1.69	− 0.91	0.70	0	7	25	4	2	se.	Jos. M. Crosby.
Hay Springs	Sheridan	3,821	27	68.2[i]	− 2.1	100[i]	13	36[i]	31	46[i]	2.27	− 0.36	0.60	0	7					A. Kadlecek.
Hebron	Thayer	1,458	28	81.0	+ 4.7	108	16	50	21	38	0.32	− 3.93	0.21	0	5					Dr. C. M. Easton.
Hemingford	Boxbutte	4,256	4								2.14		0.90	9	9					A. S. Enyeart.
Hendley	Furnas	2,231	9								1.03		0.45	0	4					T. L. Jones.
Hershey	Lincoln	2,902	2								2.99		1.06	0	10	23	3	5		G. F. Palmer.
Hillside	Arthur	3,484	4	71.0		99	7	41	31	44	5.65		1.50	0	15	22	7	2	se.	Mrs. R. R. Lloyd.
Holdrege	Phelps	2,324	23	79.4	+ 2.9	110	8	53	12	41	0.56	− 2.64	0.15	0	5	9	19	3	s.	C. B. & Q. R. R. Co.
Hooper	Dodge	1,228	16	78.6	+ 3.7	103	16	48	20†	50	1.33	− 3.01	0.45	0	5	25	2	4	s.	Dr. W. H. Heine.
Hull (near)	Banner		3								4.36		1.16	0	9	24	1	6	w.	Mrs. W. P. Miller.
Imperial	Chase	3,278	24	75.4	+ 0.9	107	6†	45	31	47	3.13	+ 0.19	1.23	0	10	12	16	3	ne.	Robt. Malcolm.
Kearney	Buffalo	2,146	26	79.8	+ 3.8	107	7	47	12	45	0.96	− 3.29	0.39	0	5	23	6	2	ne.	City engineer.
Kimball	Kimball	4,697	25	69.6	− 1.2	103	13	41	31	50	3.65	+ 1.09	1.06	0	10	19	10	2	w.	F. J. Bellows.
Kirkwood	Rock		18	74.4	+ 1.6	102	8	50	31	40[a]	3.46	− 0.35	1.42	0	6				sw.	Mrs. C. Arter.
Kowanda	Garden		5								3.19		1.60	0	8					Geo. W. Hulse.
Lexington	Dawson	2,385	24	77.7	+ 4.9	108	7	48	12	46	1.65	− 1.56	1.17	0	7	26	0	5	se.	Robt. Chadwick.
Lincoln	Lancaster	1,189	35	81.0	+ 4.6	109	16	54	21	34	1.95	− 1.88	0.99	0	10	22	6	3	s.	U. S. Weather Bureau.
Lodgepole	Cheyenne	3,820	17	73.0	+ 2.6	106	13	39	30	53	1.71	− 0.71	0.65	0	7	16	12	3	e.	R. T. Kidney.
Loup City	Sherman	2,067	18	75.6	+ 1.9	102	15	45	31	46	3.17	− 1.46	1.78	0	5	28	3	0	ne.	Harriet Hayhurst.
Loyal	Custer																			Jas. H. Bailey.
Lynch	Boyd		18								1.90	− 2.04	0.92	0	8	14	17	0	ne.	Anton Basta.
McCool Junction	York	1,575	18								1.22	− 3.07	0.35	0	6					L. L. Slagel.
Madison	Madison	1,585	19	76.4	+ 3.0	100	4	50	....	42[a]	1.37	− 1.88	0.57	0	4	27	3	1	sw.	Dr. F. A. Long.
Marquette	Hamilton	1,830	34								3.29	− 0.90	1.25	0	8					John Ellis.
Mary	Brown		3								2.44		1.34	0	7	23	7	1	nw.	G. C. Stufft.
Mason City	Custer	2,257	12								2.92	− 1.32	1.75	0	5					J. A. Amsberry.
Minatare	Scotts Bluff	3,825	4								2.96		1.18	0	8	25	4	2	nw.	A. Kennedy.
Minden	Kearney	2,169	36	80.8	+ 5.6	110	16	52	19	39	0.85	− 3.54	0.52	0	7	21	8	2	se.	Joel Hull.
Mitchell	Scotts Bluff	3,950	5	69.5		99	13	36	31	49	2.48		0.76	0	9	13	16	2	ne.	U. S. Reclamation Service.
Nebraska City	Otoe	941	38	81.9	+ 5.6	108	16	53	21	39	0.76	− 2.87	0.63	0	2	25	5	1	s.	C. B. & Q. R. R. Co.
Nelson	Nuckolls	1,683	3	81.4		110	16	48	21	46	0.48		0.22	0	3	25	3	3	s.	Mack I. Koser.
Norfolk	Madison	1,532	29	77.2	+ 3.5	101	4†	48	21†	42	1.79	− 2.29	0.65	0	8	28	2	1	s.	Dr. P. H. Salter.
North Loup	Valley	1,961	25	76.8	+ 2.6	106	15	50	19	41	1.75	− 2.11	0.56	0	5	22	9	0	se.	W. G. Rood.
North Platte	Lincoln	2,841	39	74.4	+ 0.5	100	15	47	12	43	3.37	+ 0.69	1.15	0	9	26	2	3	se.	U. S. Weather Bureau.
Oakdale	Antelope	1,722	27	74.8	+ 1.5	98	15†	49	21	38	1.27	− 2.31	0.41	0	12	16	13	2	n.	G. S. Clingman.
Omaha	Douglas	1,103	43	79.8	+ 3.3	104	16	61	12	31	1.92	− 2.41	0.67	0	8	20	9	2	s.	U. S. Weather Bureau.
O'Neill	Holt	1,975	15								2.85	− 0.09	1.01	0	6	22	7	2	sw.	L. E. Best.
Ord	Valley	2,062	18								2.58	− 1.01	0.81	0	10	22	5	4	s.	Jas. Milford.
Orleans	Harlan	1,993																		Jas. McGeachin.
Osceola	Polk	1,644	14	78.2		104	4†	50	23	41	2.63	− 1.80	0.60	0	9	22	9	0	s.	G. T. Ray.
Oshkosh	Garden	3,393	1	72.4		102	13	42	31	50	3.85		1.11	0	9	17	12	2	se.	Robert Quelle.
Palisade	Hitchcock		4								1.45		0.98	0	4					E. E. Young.
Pawnee City	Pawnee	1,175	17	80.9	+ 5.0	110	16	48	31	45	0.18	− 3.90	0.11	0	2				s.	F. A. Barton.
Paxton	Keith	3,060	7	74.4		106	13	42	31	47	4.01		1.81	0	10	26	2	3	s.	C. F. Coy.
Plymouth	Jefferson	1,419	9	80.1		110	16	50	21	39	0.20		0.09	0	3	16	11	4	s.	Dora Ruppel.
Purdum	Blaine		13	73.4	+ 1.6	101	7†	47	31	47	2.42	− 1.12	1.55	0	8	20	10	1	nw.	T. C. Jackson.
Ravenna	Buffalo	2,028	36	76.6	+ 2.5	104	15	46	12	40	2.34	− 1.78	0.84	0	8	24	4	3	s.	H. G. Smith.
Red Cloud	Webster	1,687	22	82.1	+ 5.0	108	16†	51	12	41	0.58	− 3.82	0.38	0	5	26	4	1	sw.	Chas. S. Ludlow.
St. Libory	Howard	1,887	19								2.53	− 2.03	0.92	0	5	19	9	3	s.	W. I. Meader.
St. Paul	....do	1,796	20	78.6	+ 3.1	103	15†	53	12	37	1.81	− 2.64	0.64	0	5	24	7	0	sw.	Paul Anderson.
Santee	Knox		26	76.6	+ 1.0	103	26	50	24	42	1.11	− 2.50	0.55	0	3	15	16	0	nw.	A. M MacGregor.
Schuyler	Colfax	1,357	20	78.2		105	15	50	21	41	2.74	− 0.89	0.65	0	10	19	12	0	nw.	R. O. Brownell.
Scottsbluff	Scotts Bluff	3,888	27	72.9	+ 1.0	102	13	39	12†	51[a]	2.52	+ 0.33	1.45	0	10	21	9	1	se.	A. B. McCoskey.
Seward	Seward	1,435	22	79.2	+ 2.3	106	16	53	19	36	0.80	− 3.47	0.30	0	8	7	20	4	sw.	C. B. & Q. R. R. Co.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
***Nebraska*—Continued.**																				
Sidney	Cheyenne	4,090	21	.....	.....	.....	.....	.....	.....	.....	3.31	+ 0.88	1.72	0	9	23	7	1	se.	John P. Fischer.
Springfield	Sarpy	1,052	2	.....	.....	.....	.....	.....	.....	.....	1.48	.....	0.86	0	5	18	12	1	se.	L. A. Bates.
Springview	Keyapaha	.....	22	73.2	— 0.2	97	8†	47	31	41	4.95	+ 1.74	1.65	0	9	18	9	4	nw.	C. L. Phelps.
Stanton	Stanton	1,472	22	75.6	+ 2.4	101	4†	47	20	41	2.09	— 1.72	0.90	0	7	22	9	0	sw.	Alfred Pont.
Stapleton	Logan	.....	1	77.0	.....	107	5	49	11	49	2.18	.....	0.75	0	8	.....	.....	.....	.....	F. E. Peterson.
Stratton	Hitchcock	2,804	18	.....	.....	.....	.....	.....	.....	.....	2.43	+ 0.13	2.00	0	3	.....	.....	.....	.....	Miss Stella Vennum.
Superior	Nuckolls	1,574	30	.....	.....	.....	.....	.....	.....	.....	0.28	— 4.26	0.28	0	1	.....	.....	.....	.....	F. V. Bishop.
Syracuse	Otoe	1,059	22	80.6	+ 4.1	109	16	49	21	41	0.73	— 2.87	0.34	0	7	24	7	0	sw.	W. N. Hunter.
Table Rock	Pawnee	1,023	25	.....	.....	.....	.....	.....	.....	.....	0.97	— 3.33	0.80	0	3	25	6	0	s.	E. D. Howe.
Tecumseh	Johnson	1,113	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. C. H. Davies.
Tekamah	Burt	1,060	24	77.1	+ 1.9	103	16	53	19†	41	3.24	— 1.07	1.82	0	9	24	1	6	se.	Dr. A. D. Nesbit.
University Farm	Lancaster	.....	30	81.0	+ 5.2	109	16	50	21	39	2.37	— 1.61	1.15	0	7	20	11	0	.....	S. W. Perin.
Valentine	Cherry	2,613	25	72.0	— 1.2	98	7	44	31	39	3.94	+ 0.54	1.28	0	10	21	8	2	ne.	U. S. Weather Bureau.
Wahoo	Saunders	1,187	11	.....	.....	.....	.....	.....	.....	.....	3.38	— 0.90	1.47	0	8	23	8	0	.....	W. T. Mauck.
Wakefield	Dixon	1,387	19	76.2	+ 3.1	102	30	47	21†	43	1.61	— 1.55	0.70	0	7	25	5	1	s.	I. H. Weaver.
Walthill	Thurston	.....	12	76.9	+ 4.7	100	30	49	21†	39	2.34	— 1.38	0.60	0	8	16	15	0	s.	G. A. Dudley.
Watertown	Buffalo	2,299	8	.....	.....	.....	.....	.....	.....	.....	2.85	.....	1.88	0	4	22	9	0	s.	R. E. Swift.
Wauneta	Chase	2,935	16	.....	.....	.....	.....	.....	.....	.....	1.25	— 1.44	0.45	0	6	.....	.....	.....	.....	C. D. Fuller.
Weeping Water	Cass	1,080	36	80.0	.....	110	16	49	21	44	1.64	— 2.14	1.24	0	5	23	4	4	s.	S. W. Orton.
Westpoint	Cuming	1,313	28	79.7	+ 4.5	103	16	52	21†	38	2.40	— 1.46	0.66	0	8	27	4	0	s.	J. C. Elliott.
Wisner	....do	1,380	18	.....	.....	.....	.....	.....	.....	.....	1.94	— 2.00	0.42	0	10	.....	.....	.....	.....	F. C. Evans.
York	York	1,633	25	80.6	+ 3.7	112	16	50	21	44	1.17	— 3.06	0.27	0	8	26	4	1	sw.	A. T. Giauque.
Iowa.																				
Afton	Union	1,212	19	77.0	+ 1.8	97	29†	56	10	28	0.94	— 3.41	0.76	0	3	25	6	0	sw.	N. W. Rowell.
Allerton	Wayne	.....	11	77.9	+ 5.3	103	29	53	21	33	0.25	— 4.32	0.20	0	2	24	5	2	s.	Maude Chase.
Alton	Sioux	1,305	8	74.7	.....	100	30	50	21	39	3.66	.....	1.33	0	9	20	10	1	sw.	W. S. Slagle.
Atlantic	Cass	1,164	22	78.4	+ 5.2	105	16	51	21	37	0.49	— 3.84	0.14	0	8	.....	.....	.....	sw.	Thos. H. Whitney.
Audubon	Audubon	1,301	19	76.2	+ 4.1	98	16	51	11†	34	1.88	— 2.04	0.90	0	5	24	5	2	se.	Geo. E. Kellogg.
Bedford	Taylor	.....	13	77.1	+ 3.7	101	29	50	21	38	3.38	— 1.96	1.65	0	3	22	9	0	s.	E. E. Healy.
Centerville	Appanoose	1,013	3	79.2	.....	105	29	54	21	37	0.55	.....	0.35	0	3	27	1	3	s.	Gordon Peacock, jr.
Chariton	Lucas	1,042	18	76.6	+ 2.8	103	29	50	21	37	0.55	— 4.91	0.55	0	1	21	10	0	s.	C. C. Burr.
Clarinda	Page	1,009	23	78.1	+ 2.6	106	16	53	21	40	3.24	— 1.46	2.60	0	5	21	8	2	s.	A. S. Van Sandt.
Corning	Adams	1,117	21	78.3	+ 4.7	104	16	48	21	40	1.37	— 2.98	0.81	0	3	17	6	8	sw.	Jerome Smith.
Corydon	Wayne	1,101	20	78.9	+ 4.1	104	29	51	21	37	0.91	— 3.27	0.84	0	3	18	10	3	sw.	May C. Miller.
Council Bluffs	Pottawattamie	990	3	77.9	.....	103	14	50	19	39	2.62	.....	1.60	0	7	17	8	6	se.	B. W. Crossley.
Creston	Union	1,312	8	75.8	.....	99	16†	52	21	36	0.74	.....	0.50	0	4	22	7	2	sw.	O. J. Colby.
Cumberland	Cass	.....	14	.....	.....	.....	.....	.....	.....	.....	0.11	— 5.33	0.10	0	2	30	1	0	sw.	J. H. Reppert.
Denison	Crawford	1,180	19	75.9	+ 3.2	99	16†	48	10†	38	2.43	— 1.63	1.02	0	9	26	3	2	s.	W. C. Van Ness.
Elliott	Montgomery	.....	8	78.0	.....	103	16	54	10†	36	2.72	.....	1.35	0	4	22	9	0	s.	C. H. Westrope.
Greenfield	Adair	.....	21	78.0	+ 4.1	104	16	52	20	34	1.22	— 3.48	1.03	0	3	17	14	0	sw.	Frank A. Ward.
Harlan	Shelby	1,182	14	75.5	+ 2.3	98	15†	51	10†	36	1.82	— 3.49	0.76	0	9	18	12	1	sw.	C. A. Reynolds.
Inwood	Lyon	1,474	9	73.1	.....	99	30	52	12†	33	2.85	.....	1.20	0	9	25	4	2	n.	F. B. Hanson.
Lake Park	Dickinson	1,479	.....	71.4	.....	96	30	50	21†	34	2.25	.....	0.90	0	4	25	3	3	s.	A. E. Woodruff.
Lamoni	Decatur	1,120	6	78.5	.....	102	29†	55	21†	39	1.32	.....	0.60	0	3	12	15	4	s.	T. J. Fitzpatrick.
Le Mars	Plymouth	1,224	17	74.6	+ 2.2	96	30	50	24	36	1.80	— 2.67	0.86	0	9	22	8	1	se.	G. A. C. Clarke.
Lenox	Taylor	1,250	18	78.0	+ 4.2	100	16	54	12	31	0.78	— 4.16	0.58	0	4	25	5	1	s.	J. L. Hurley.
Leon	Decatur	1,120	11	78.4•	+ 5.2	100	29	55	10	31	1.20	— 3.22	1.20	0	1	24	4	3	sw.	Morris Gardner.
Little Sioux	Harrison	.....	8	77.5	.....	100	16†	50	24	37	3.38	.....	1.20	0	9	22	8	1	se.	Geo. H. Gibson.
Logan	....do	928	46	77.2	+ 2.5	101	16	47	12	37	1.84	— 3.35	0.60	0	6	18	12	1	sw.	Glenn H. Stern.
Mount Ayr	Ringgold	1,236	20	79.0	+ 4.0	102	29†	56	10†	32	1.18	— 4.13	0.70	0	6	22	9	0	s.	Alex Maxwell.
Murray	Clarke	1,216	22	77.8	+ 3.7	102	29	55	22	35	0.89	— 3.96	0.73	0	3	19	12	0	s.	M. T. Ashley.
Northboro	Page	1,046	1	80.1	.....	108	16	55	10†	38	1.41	.....	0.85	0	4	23	4	4	se.	J. M. Darby.
Odebolt	Sac	1,356	16	77.5	+ 3.0	102	15†	51	10†	38	2.60	— 2.04	1.10	0	6	27	4	0	.....	E. Starner.
Onawa	Monona	1,051	13	79.6	+ 4.6	101	30	56	24	34	2.04	— 3.63	0.52	0	9	28	2	1	s.	C. G. Perkins.
Pacific Junction	Mills	960	14	77.8	+ 3.6	107	16	52	10†	43	0.40	— 4.73	0.28	0	4	23	8	0	n.	H. H. McCartney.
Rock Rapids	Lyon	1,358	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. Wyckoff.
Sheldon	O'Brien	1,422	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Aupperle.
Sibley	Osceola	1,212	20	71.5	+ 1.3	98	30	49	10	39	2.82	— 1.15	0.83	0	9	20	7	4	n.	H. G. Doolittle.
Sioux Center	Sioux	.....	14	74.1	+ 2.9	96	30	52	10	31	2.64	— 2.07	0.90	0	6	29	2	0	s.	J. de Ruyter.
Sioux City	Woodbury	1,135	24	76.6	+ 2.4	100	30	54	21	36	1.92	— 1.69	0.92	0	8	23	7	1	s.	U. S. Weather Bureau.
Spencer	Clay	.....	3	73.8	.....	99	30	49	10	39	2.76	.....	1.14	0	8	.....	.....	.....	sw.	S. Gillespie.
Thurman	Fremont	.....	16	80.0	+ 4.6	108	16	53	19†	37	1.16	— 4.75	0.71	0	4	14	15	2	sw.	C. R. Paul.
Washta	Cherokee	1,157	15	74.2	+ 3.6	99	16†	45	10	40	2.53	— 1.92	0.93	0	8	25	5	1	s.	H. L. Felter.
Kansas.																				
Abilene	Dickinson	1,157	18	.....	.....	.....	.....	.....	.....	.....	0.38	— 3.70	0.26	0	3	23	6	2	s.	T. W. Sherman.
Agricultural College	Riley	1,100	55	83.4	+ 4.7	110	14	49	21	42	0.17	— 4.62	0.09	0	2	11	18	2	s.	Prof. J. O. Hamilton.
Alton	Osborne	1,651	11	84.2	.....	113	16	50	12	48	0.35	— 3.40	0.25	0	3	24	5	2	s.	H. A. Storer.
Atchison	Atchison	973	22	.....	.....	107	....	54	24	38	0.65	— 4.18	.....	0	1	.....	.....	.....	.....	Prof. E. M. Stahl.
Beloit	Mitchell	1,383	18	83.6	.....	113	14	51	10	42	T.	— 3.66	T.	0	0	14	15	2	s.	F. A. Slack.
Blakeman	Rawlins	2,894	16	77.7	+ 2.1	108	15	47	12	47	0.64	— 2.44	0.29	0	5	27	1	3	s.	C. L. Henderson.
Blue Rapids	Marshall	1,105	7	.....	.....	.....	.....	.....	.....	.....	0.30	.....	0.23	0	2	21	5	5	.....	M. Norton.
Centralia	Nemaha	1,256	4	82.2	.....	110	16	49	21	46	0.36	.....	0.33	0	2	20	10	1	sw.	N. S. Hazen.
Chapman	Dickinson	1,113	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	E. F. Halbert.
Clay Center	Clay	1,203	12	85.1	+ 7.3	112	14†	50	21	49	0.00	— 3.78	0.00	0	0	22	5	4	sw.	O. L. Slade.
Colby	Thomas	3,138	22	78.4	+ 3.2	106	13	55	20†	40	0.59	— 1.87	0.32	0	6	20	8	3	sw.	G. H. Kinkel.
Concordia	Cloud	1,398	29	83.2	+ 5.1	110	14	55	21	36	0.15	— 3.47	0.09	0	4	9	21	1	s.	U. S. Weather Bureau.
Densmore	Norton	2,200	4	79.8	.....	110	15†	52	1†	42	0.73	.....	0.21	0	5	23	3	5	se.	Miss Irene Vaughn.
Dresden	Decatur	2,731	19	80.0	+ 4.6	109	15	53	12	51	0.49	— 3.31	0.25	0	5	15	5	11	ne.	Jacob Bock.
Ellsworth	Ellsworth	1,537	9	84.7	.....	112	14	54	21	42	0.13	.....	0.07	0	3	17	14	0	s.	Geo. Seitz.
Emmett	Pottawatomie	1,024	1	.....	.....	.....	.....	.....	.....	.....	0.17	.....	0.17	0	1	22	7	2	s.	Frank Zina.
Eskridge	Wabaunsee	1,412	7	81.2	.....	102	15	58	10	32	1.28	.....	0.46	0	5	22	8	1	s.	Geo. D. West.
Farnsworth	Lane	2,850	12	81.1	+ 5.0	116	13	50	12	46	0.50	— 2.64	0.14	0	4	27	3	1	s.	C. M. Jennison.
Fort Scott	Bourbon	857	38	83.9	+ 6.0	105	18	55	21	40	8.28	+ 3.86	3.82	0	6	21	0	10	sw.	E. A. Shaver.
Frankfort	Marshall	1,146	19	84.4	+ 7.4	113	27	51	21	44	0.90	— 3.54	0.90	0	1	24•	4•	0•	s.	W. W. Watson.
Garnett	Anderson	950	7	.....	.....	104	16†	.....	.....	.....	2.66	.....	0.68	0	8	13	17	1	s.	D. D. Judy.
Goodland	Sherman	3,687	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	C. C. Calvert.
Hanover	Washington	1,225	16	82.6	+ 5.6	110	16	55	12†	41	0.04	— 4.10	0.04	0	1	22	2	7	s.	A. Jaedicke, jr.
Harrison	Jewell	1,804	12	81.8	+ 6.1	109	16	51	12	42	0.94	— 3.36	0.67	0	5	28	3	0	s.	Mahlon Tegley.
Hays	Ellis	2,000	45	82.0	+ 4.9	110	14	57	21	46	0.63	— 2.78	0.28	0	5	11	17	3	sw.	G. K. Helder.
Hill City	Graham	2,134	5	82.2	.....	113	13	50	24	44	0.82	.....	0.48	0	3	24	7	0	s.	C. A. G. Inlow.
Holton	Jackson	1,043	2	81.8	.....	109	16	50	21	40	0.06	.....	0.06	0	1	21	9	1	s.	Miss Thamar Richey.
Horton	Brown	1,188	24	80.6	+ 4.1	106	15†	54	12	38	0.51	— 3.82	0.28	0	3	20	10	1	s.	Mrs. S. C. Belden.

TABLE 1.—*Climatological data for July, 1913. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
***Kansas*—Continued.**																				
Hoxie	Sheridan	2,700	14	80.0	+ 3.0	110	13	51	12	43	0.38	− 2.80	0.20	0	2	12	16	3	s.	I. L. Vinson.
Lawrence	Douglas	997	45			103	15				1.67	− 3.03	0.89	0	5	9	17	5	sw.	R. K. Young.
Leavenworth	Leavenworth	913	69	82.0	+ 5.0	103	15†	61	19†	34	2.07	− 2.16	1.25	0	4	20	5	6	s.	Dr. A. F. Yohe.
Lebanon	Smith	1,812	15	82.2	+ 5.7	109	16	53	12	39	1.15	− 2.71	0.40	0	4	24	6	1	s.	E. V. Bower.
Lenora	Norton	2,300									0.88		0.32	0	8					J. S. Goodrich.
Leoti	Wichita	3,300	10	79.6		109	13	54	12	43	1.23		0.88	0	5	21	9	1	se.	L. E. Gorsuch.
Lincoln	Lincoln	1,374	1	85.0		111	14	52	21	42	0.15		0.15	0	1	21	7	3	s.	R. W. Greene.
Lindsborg	McPherson	1,333	7								0.83		0.33	0	5	20	7	4	s.	A. J. Fredrickson.
McCracken	Rush	2,139	1	84.3		110	14	58	19†	40	0.78		0.33	0	5	21	10	0	sw.	E. D. Floyd.
Minneapolis	Ottawa	1,259	23	83.2	+ 5.0	107	16	58	10	39	2.34	− 0.84	2.25	0	2	24	6	1	s.	J. L. Steele.
Moran	Allen	1,098	17	81.9	+ 3.8	105	18	59	22	38	4.51	− 0.16	3.10	0	6	20	9	2	sw.	C. J. Norton.
Natoma	Osborne	1,834	4																	C. O. Hunt.
Norton	Norton	2,284	15	79.4	+ 3.5	109	13	52	12	43	0.57	− 2.91	0.20	0	4	17	13	1	se.	Sim Sleffel.
Oberlin	Decatur	2,539	26	80.6		110	7†	51	12†	46	0.32	− 3.23	0.31	0	2	22	7	2	s.	I. K. Huber.
Oketo	Marshall	1,194	5	83.0		112	16	52	21	41	1.49		1.41	0	3	9	21	1	s.	J. A. Church.
Olathe	Johnson	1,032	18	82.4	+ 4.9	108	15	55	21	41	0.98	− 3.65	0.32	0	5	23	6	2	s.	Dr. S. B. S. Wilson.
Oskaloosa	Jefferson	991									0.71		0.55	0	2					Ralph Snyder.
Ottawa	Franklin	926	19	81.6	+ 4.5	104	15†	55	21	39	1.98	− 2.84	0.64	0	8	21	6	4	s.	W. J. Sheldon.
Phillipsburg	Phillips	1,939	22	81.8	+ 5.7	111	16	55	12†	42	1.34	− 1.81	0.92	0	6	23	8	0	sw.	N. E. Bailey.
Plainville	Rooks	2,156	7								0.74		0.25	0	5	26	5	0	sw.	P. D. Spellman.
Pleasanton	Linn	862	11	83.0	+ 5.3	105	15	58	21	37	2.58	− 1.59	1.33	0	5	22	8	1	sw.	B. F. Blaker.
Quenemo	Osage	941	1								1.57		0.56	0	5	21	8	2	sw.	R. L. Graham.
Republic	Republic	1,495	10	81.8		110	16	49	12	45	0.22		0.12	0	4					J. W. Ambrose.
Russell	Russell	1,834	14	83.8	+ 5.9	110	14	58	10†	39	0.20	− 2.87	0.20	0	1	23	5	3	s.	Robert Brebner.
Russell Springs	Logan		3																	D. J. Hutto.
St. Francis	Cheyenne	3,288	5	77.2		109	13	47	31	45	2.19		1.08	0	5	12	16	3	se.	J. E. Uplinger.
Salina	Saline	1,227	29	85.3	+ 6.9	110	8	51	10	40	0.28	− 3.37	0.11	0	3	26	5	0	sw.	Prof. A. W. Jones.
Scott	Scott	2,971	7	81.6		114	13	57	12†	44	2.22		1.54	0	3	27	3	1	s.	J. B. Loughran.
Smith Center	Smith	1,800	3	83.0		112	16	50	12	45	0.86		0.39	0	5	24	5	2	se.	W. H. Nelson.
Topeka	Shawnee	997	27	81.8	+ 4.2	104	16	61	21	31	1.57	− 3.28	1.06	0	4	20	10	1	s.	U. S. Weather Bureau.
Tribune	Greeley	3,612	14	78.2		107	13	54	20	44	3.02	+ 0.35	2.35	0	5	26	2	3	se.	Chas. E. Cassel.
Valley Falls	Jefferson	913	14	81.4	+ 5.1	107	16	54	21	40	0.39	− 4.10	0.30	0	4	27	3	1	s.	Miss Nettie Maxwell.
Vinland	Douglas	880	4								1.58		0.60	0	9					A. Schick.
Wakeeney	Trego	2,456	30	80.6	+ 3.5	110	13	54	12†	41	3.08	− 0.28	1.06	0	6	27	3	1	s.	A. S. Peacock.
Wallace	Wallace	3,303	43	80.1	+ 5.3	109	7	51	12	42	0.33	− 2.88	0.14	0	5	23	8	0	s.	J. L. Page.
Wamego	Pottawatomie	1,002	20	83.0		106	15†	55	21	32	0.14	− 5.07	0.12	0	2	19	8	4	sw.	M. L. Stone.
Missouri.																				
Amoret	Bates	850	5	83.1		106	15	59	21	37	1.61		0.90	0	3	18[b]	8[b]	3[b]	sw.	Darby Fruit Farm.
Appleton City	St. Clair	583	23	82.6	+ 4.6	106	8†	55	18	45	1.38	− 4.14	1.19	0	2	17	11	3	sw.	Robert Brown.
Arlington	Phelps	695	18								3.78	+ 0.36	0.79	0	11	19	6	6	se.	G. V. Randolph.
Arthur	Vernon	767	21	82.6	+ 6.1	105	16†	63	25	34	0.86	− 3.49	0.57	0	4	21	10	0	sw.	J. T. Armstrong.
Avalon	Livingston		29	78.8	+ 1.7	101	17	55	21	35	3.64	− 1.02	0.90	0	9	25	5	1	sw.	F. G. Ashbaugh.
Bagnell	Miller	594	11								2.26	− 2.46	1.50	0	3	20	4	7	w.	C. O. Brockman.
Bethany	Harrison	881	24	79.8	+ 4.6	100	30	57	20†	32	2.06	− 2.64	0.78	0	4	23	8	0	se.	W. H. Skinner.
Bolivar	Polk	1,070	26	83.8	+ 7.3	108	18	54	21	43	1.51	− 2.39	0.60	0	5	23	8	0	sw.	A. C. Fink.
Boonville	Cooper	600	38								2.66	− 1.70	0.85	0	8	20	0	11	sw.	C. Randecker.
Brunswick	Chariton	652	35	78.3	+ 1.4	97	16†	58	21	31	6.38	+ 1.78	2.18	0	8	16	4	11	e.	Louis Benecke.
Clinton	Henry	800	27	84.6		107	17	60	21	36	0.45	− 4.14	0.45	0	1	22	9	0	se.	A. E. Derwent, M. D.
Columbia	Boone	784	24	80.1	+ 2.7	100	28	59	22	31	3.38	− 0.27	0.98	0	10	11	14	6	s.	U. S. Weather Bureau.
Conception	Nodaway	982	30	79.0	+ 3.4	101	16	57	10	29	3.93	− 0.31	3.62	0	4	18	12	1	s.	Fr. Adhelm Hess.
Crocker	Pulaski	1,300	2	80.4		103	18†	57	22	36	5.43		1.74	0	8	16[a]	11[a]	3[a]	s.	Ira H. Stephens.
Duncan	Webster		1	78.1		101	18	53	21	39	2.70		1.22	0	9	14[a]	13[a]	3[a]	s.	C. A. Mingus.
Eldon	Miller	934	2	80.8		104	18	57	21†	38	3.09		1.20	0	10	7	23	1	sw.	Charles A. Kellogg.
Fayette	Howard	725	31	79.8	+ 2.6	100	29	60	21†	30	3.25	− 0.82	1.11	0	5	19[c]	6[c]	1[c]		Prof. T. B. Smith.
Fulton	Callaway	818	23			101	17†	50	20		3.08	− 1.59	0.83	0	6	24[a]	4[a]	2[a]	w.	Russell Johnston.
Glasgow	Howard	618	35								4.85	+ 1.02	1.32	0	7	20	0	11	e.	J. J. Shaughnessy.
Grant City	Worth	1,130	22	79.0	+ 3.8	105	29	55	10	35	2.10	− 2.92	0.93	0	3	25[a]	2[a]	3[a]	s.	W. H. Campbell.
Harrisonville	Cass	912	42	82.4	+ 5.0	105	16†	61	10†	36	1.53	− 2.56	0.55	0	7	15	3	13	sw.	A. J. Sharp.
Hazelhurst	Livingston		21								3.67	− 0.24	1.73	0	6					W. H. Baker.
Hermann	Gasconade	482	40								2.54	− 1.42	0.90	0	12	11	12	8	s.	C. T. Maushund.
Houston	Texas	1,280	22	76.4	+ 0.7	100	30	48	21	40	4.08	− 0.68	1.05	0	8	4	27	0	s.	E. Dempsey.
Jefferson City	Cole	628	32	79.8	+ 1.9	104	18†	56	22	39	2.77	− 1.11	0.82	0	11	19	0	12	s.	Miss Emma Swift.
Kansas City	Jackson	963	26	81.6	+ 4.0	103	15	62	19	27	3.86	− 0.98	1.21	0	7	18	12	1	s.	U. S. Weather Bureau.
Kidder	Caldwell	1,017	22	78.4	+ 1.9	99	29†	57	10†	27	4.56	+ 0.31	3.08	0	6	21	8	2	sw.	J. F. Sharp.
Lamonte	Pettis	863	26	79.9		102	16†	53	21	39	3.35	− 1.35	1.40	0	5	8	23	0	sw.	J. Ed. Hall.
Lebanon	Laclede	1,265	25	78.6	+ 2.0	98	28†	56	21	31	2.78	− 1.90	0.90	0	8	15	13	3	s.	M. W. Serl.
Lexington	Lafayette	813	32	80.6	+ 4.1	102	17	56	21	35	4.45	− 0.65	1.90	0	8	21	0	10	s.	J. W. Keithley.
Liberty	Clay	864	26	82.4	+ 5.1	104	29	58	10	35	3.86	− 0.88	1.80	0	6	18	12	1	sw.	W. C. Wilmott.
Lockwood	Dade	1,088	18	81.7		101	18	57	21	33	4.14	− 1.62	1.74	0	4	20	10	1	sw.	C. S. Crow.
Marshall	Saline	779	23	79.4	+ 2.6	101	29	57	22	37	3.57	− 0.86	1.38	0	6	27	4	0	sw.	Prof. W. H. Black.
Maryville	Nodaway	1,100	24	79.2	+ 3.5	105	16	57	10†	41	4.00	− 1.56	3.50	0	5	24	1	6	s.	J. R. Brink.
Mount Vernon	Lawrence	1,480	37	79.6	+ 1.9	99	7†	52	21†	40	5.49	+ 0.10	1.80	0	6	23	6	2	sw.	J. R. White & Son.
Nevada	Vernon	860	20								2.06	− 1.92	1.40	0	8	27	3	1	sw.	C. Jewell.
Oregon	Holt	1,113	59	80.6	+ 5.4	105	16	58	10	31	0.69	− 3.86	0.69	0	1	23	8	0	se.	Tom Curry.
Osceola	St. Clair	738	15								1.21	− 3.53	0.50	0	7	18[a]	4[a]	8[a]	sw.	W. E. Matthews.
Pattonsburg	Daviess		4								2.85		1.62	0	5	23	0	8	sw.	Garrie Burton.
Rolla	Phelps	1,139	33	79.5	+ 2.7	102	18	56	23	35	3.91	− 0.23	0.63	0	14	16	6	9	s.	Prof. P. J. Wilkins.
St. Charles	St. Charles	614	36	80.3	+ 2.9	103	29	59	22†	31	2.44	− 1.10	0.59	0	7	15	14	2	s.	L. C. Saeger.
St. Joseph	Buchanan	967	42	81.6		104	15	61	21	31	1.61	− 2.37	1.44	0	4	19	9	3	s.	U. S. Weather Bureau.
St. Louis (1)	St. Louis City	567	43	80.8	+ 1.7	102	18	64	25	23	3.61	+ 0.18	2.12	0	8	12	14	5	s.	Do.
St. Louis (2)	do	578	2	80.7		101	18	64	21	25	4.54		2.78	0	8	17	11	3	s.	St. Louis University.
Sublett	Adair	1,000	34	79.2	+ 3.4	102	30	48	17	50	2.50	− 1.89	2.00	0	2	16[a]	13[a]	1[a]	sw.	Lewis Spriggs.
Tarkio	Atchison		2	78.8		108	16	58	19	39	1.54		0.84	0	3	24	6	1	s.	Prof. M. H. Rees.
Trenton	Grundy	812	19	78.8	+ 2.5	96	17†	58	10†	29	3.70	− 0.28	1.52	0	8	27	1	3	s.	W. H. Estes.
Unionville	Putnam	1,072	21	77.8	+ 1.0	102	17	50	21	40	0.03	− 4.35	0.03	0	1	14	9	8	s.	Geo. W. Davis.
Warrensburg	Johnson	883	34	81.9	+ 3.5	102	16†	59	21	34	2.93	− 1.31	1.19	0	5	21	9	1	nw.	A. F. Smithson.
Warrenton	Warren	865	24	80.2	+ 2.9	104	18	58	21†	33	3.87	− 0.14	0.94	0	9	12	10	9	s.	Prof. J. H. Frick.
Warsaw	Benton	700	10	83.5	+ 5.5	106	16†	55	22	45	1.41	− 3.16	1.00	0	8	16	15	0	sw.	J. R. Smith, M. D.
Wheatland	Hickory	920	21								0.20	− 3.96	0.10	0	3	24	7	0	s.	Mrs. S. A. Jackson.

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
‡ All temperature normals for Montana used in this table have been reduced to the 33-year period.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 6, Missouri Valley.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Arapahoe	Bighorn										.23												.15	.22	.05		T.						0.42
Basin	....do		.11														.17						.37	.11	.10	.87				.15		2.11
Big Creek Station	North Platte																																
Boyd	Cheyenne			.02	.02			.06		.07	.59	T.				.06	.49	.02				.02	.23	.08	.05	.32	.01			.33	T.		2.37
Burns	South Platte							.01	.02					T.	T.		.22	.56	.22				1.10	.30		.10			.25		.10		2.88
Casper	North Platte				T.						.07	.13			T.	.03		.03	.07			.03	T.	.13	.38		.69	.03			.39		1.98
Centennial	....do									T.	T.			.03	.12		.25	.25	.35		.05	.15	.15	.15			T.			.12			1.62
Cheyenne	South Platte						.02	.04	T.		T.			.09	.09	.02	.01	.02	.01		.52	.51	.08	.01	T.	T.							1.42
Chugwater	North Platte																.26	.08	.34	.43			.72	.05		.07	.05						2.00
Clark	Yellowstone		.07	.04			T.				.06				T.							T.	.22		T.		.38	.05	T.	.43	.26		1.51
Cody	Bighorn		.18								.09												.17	.05	.03	.01	.25	.25		.09	.25		1.37
Crandall Creek	Yellowstone	T.	.13	.11	.07			.04			.45											.24	.14	.03	.14	.14	.77	.22	.05	.81	.73		4.07
Dome Lake	Tongue			.15							.10	.12					.17	.10		.24		.48	.68		.10					.30			2.44
Douglas	North Platte										.09	.23					T.		.23				T.	.43	T.		.60		T.		.15		1.73
Dubois	Bighorn		.08	.09			T.										.03				T.	.23	.09	.17	.27	T.	.06		.10	.07	.14		1.33
Eatons Branch	Tongue							.24			.27	.12					.11								1.10		.80			.30			2.94
Echeta	Powder			.64							.25	T.						1.10						.25				.30		.10			2.64
Elk Mountain	North Platte													.10	.12		.14	.21					.87	.32	.03			.06			.04		1.89
Encampment	....do							T.			T.				.13	.15	.02	.50	.05				.30	1.90	.45	T.			T.				3.50
Ervay	Powder			T.														.04					.05	.53		T.	T.	.30			.49		1.41
Fort Laramie	North Platte											T.	T.					.06	.82	1.46				.10	.51		T.						2.95
Foxpark	....do									T.	T.			T.			.40	.15	.28				.10	.18	.22								1.33
Germania	Bighorn		.07			.05		.02			.06	.05					.06			.02			.06	.09	.01	T.	.46	T.	.03		.03		1.01
Gillette	Powder																																
Horse Creek	Bighorn		.12				.31				.12						T.					.09	.82	.42	1.01	.07	.11	.04	.03	.25	.07		3.46
Hunters Station	Powder							.73		.05	.10	.26						.09	.36		.09	.08	.46	.67	.11		.33			.10	.24		3.67
Hyattville	Bighorn																							.12									0.12
Jireh	Niobrara							T.	.22		T.	.41						.37	.40					.42	.06	.01	.06				.04		1.99
Kinnear	Bighorn																	.06		.13			.22	.98	.23		.31			.06			1.99
Kirtley	Niobrara								.14		.04	.47						.25	.29	.18				.17	.10		.38						2.02
Kirwin	Bighorn		.15	.10	.65		.15				T.	.40								.53	.10	.15	.40	.50	.50	.02	.30	.05	.05	.10	.40		3.95
Knowles	Cheyenne			.62							.23							.33				T.	.42	T.		.51	.04			.49		2.64
Lagrange	North Platte								.17									1.66	.55					.77	.05	.03	.30	.16			.04		3.73
Lander	Bighorn			.01			T.										T.	T.	T.				.61	.08	.13	.01	.12	T.			.07		1.03
Laramie	North Platte								.13	T.					.02	.05	.13	.15					1.87					.05					2.40
Leo	....do																																
Lolabama Ranch	Yellowstone	20							.01													.20	.30	.10	.20	.10	.20	.40	.30	.60			2.61
Lovell	Bighorn																																
Lusk	Niobrara								.05		.35						.95	.26	.55					.33	.06						.07		2.16
Manville	....do								.15			.28						.65	.44														1.98
Moorcroft	Cheyenne								.04		T.	.25				.01						T.	.05	.10	T.					.20	.30		0.95
Moore	North Platte			T.				T.		T.	T.			.01	.24	T.	.09	1.44	1.30	.30			.05	1.73	.02			T.					5.18
Newcastle	Cheyenne				T.						.15	.57						.16	.06				T.	.11	.17						.12		1.34
Pathfinder	North Platte				.05							.03				.01				.01			T.	.09	.03			.07	T.		.20		0.49
Pinebluff	South Platte	.08						T.	.15	.02		T.		T.	.06	T.	.72	.56	.18	T.	T.	1.21	.42	.08		.28						.16	3.92
Pine Ridge	Cheyenne	.01	T.									.10					.46	.10						.23		.03				.37			1.30
Powell	Bighorn	.04	.05					.02			.01	.10											.12	.12		.05	.03	.18	.06		.25		1.03
Rawlins	North Platte				.14			T.		T.	.03			.03	T.		.32	T.			.03	.18	.54	.12	.25	T.			.02		.22		1.88
Rock River	....do							T.		T.	T.			T.	.04	T.	.06	T.				.40	.15	T.		.03	.04			T.			0.72
Rockypoint	Powder	.08		.10	T.						.08	.06						.23	.09				.12	T.			.15				.16		1.07
Saratoga	North Platte													.03	.07			.23			.05		.43	.65									1.46
Seven-Mile Creek	....do								.01					.07	.20			.32					.27	.76	.05		.03	.04					1.75
Sheridan	Tongue	.01		T.	.02			.01			.17	T.					.11	.08	.06			T.	.20	.14	T.	T.	.62	T.		.25	.03		1.70
Shoshone Dam	Bighorn		T.	T.							T.										T.	.04	.38	T.	.15	T.	.38	.04	T.	.13			1.12
South Pass City	North Platte		T.	.02	.23		T.										.03						.05	.21	.10	T.	T.		.15	.18	.29		1.26
Sundance	Cheyenne											.30				.05	.10							.20							.30		0.95
Thermopolis	Bighorn				.12																		.11	.41	.26	.01		.07			.21		1.19
Ulm	Tongue	.01			.02						.19	.03						.41					.05	.42			.47				.20		1.80
Upton	Cheyenne				T.				.21		T.	.24			T.			T.				T.			.25	.20				T.	.15		1.05
Verona	Tongue	.08									.35						.10	.50				.06	.25			.24	.10			.15			1.83
Wheatland	North Platte							T.				T.			T.		T.	T.	.65					.89				.20					1.74
Wiants Ranch	....do										T.	.05		.05	.22	.04	.02	.50	.01		.08		.56	.45	.14	T.							2.12
Woodrock	Tongue	.08	.05	.12	.12		T.	T.			.20	.12					.25	.06	.05		.50	.07	.35	.35	.04	T.	.85	.18		.04	.30		3.73
Worland	Bighorn	.01	T.		T.						T.	.16											.07	.28	.04		.10		.07	T.	.05		0.78
Wyncote	North Platte										T.	T.				.04		2.62		.36				.55			.10						3.47
Yellowstone Park	Yellowstone	.08	.27	.09	.02				T.	.05	.20											.24	.02	.22	.03	.36	.07	.29	1.17	.03			3.14
Fountain	Madison																																
Gallatin	Gallatin																																
Grand Canyon	Yellowstone										.26											.27	.60	T.	.56	.52	.30	.03	.14	1.35	.72		4.75
Lake Yellowstone	....do	.06	.09	.04							.90											.09	.90		.80	.80	.40	.10		1.10	1.30		6.58
Norris	Madison	.01	.30	.20						.01	.01						.01			.30		.40	.30		.40					.90	.60		3.44
Riverside	....do	.03	.34	.05																		.52	.46		.59	.34	.15	.17	.18	1.19			4.02
Soda Butte	Yellowstone		.68	.07	T.					.01	.20										T.	.23	.08		.02	1.30	.20	.30	T.	1.30	.23		4.62
Sylvan Pass	Bighorn	.13	.06	.10	.27						.67	.08						.05			.05		.76	.10	1.01	.65	.31	.20	.05	.43	.70		5.62
Thumb	Yellowstone	.24	.11	.02							.07											T.	.67	*	1.54	.52	.56		.07	.41	.72		4.93
Tower Falls	....do	T.	.50	.10	.10		T.				.21											.10	.16		.60		.50	.10	.15	.50	.40		3.42
Up'r Geyser Basin	Madison				.19				.12	.07	.34											.30	.42		1.50	.50	.23		.20	1.05			4.92
Montana.																																	
Absarokee	Yellowstone																					.02	.30	.38			.88	.92		.23	.02		2.75
Adel	Missouri		.18	.06	.06	.03					T.				T.							.15	.04	.10		.35	.52			.28	T.		1.77
Agricultural College	Gallatin	.03	.28	.02	.16						.17	T.										.06	.25			.11	.52		.03	.50	.04		2.17
Augusta	Missouri	T.		.26																		T.	T.		T.	T.	2.86						3.12
Babb	St. Marys											.60				.01							.04			.50	.80			.50			2.45
Bald Butte	Missouri	.15	.20	.34	.22		.01			.01	.05											.13					.43			.10			1.64
Bigtimber	Yellowstone	.06	.14					.08			.11	.12											.80				.50			.75			2.56
Billings	....do	.01	.09	.02				T.	.01	.01	.05												.18			.06	.40	.11		.30	.03		1.27
Blackleaf	Missouri	.25		.04							T.			T.													.38		.11				0.78
Boulder Nursery	Jefferson	.02	.77	T.		.11		T.			T.		T.									.11	.12	.08	.13		.64			.10			2.08
Bowen	....do	.33	.10	.17																		.38	.03			.34			.04	.04			1.43
Box Elder	Milk		.14	.13	.65		.14	.03		.33	.21	.19	.02	.04								.03	.01			T.	.28						2.20
Bridger	Yellowstone	.02						.01			.31												T.			T.	.29			.38	.17		1.18
Broadview	....do		.11						.18	.07													.78				.13			.65			1.92
Browning	Marias											.20															.85						1.05
Busby	Yellowstone		.08		.02				.19		.16								.05				.12				.31			.02	.09		1.04
Busteed	....do	.02	.13	.02			T.	T.	.01		.14											T.	.62			.19	.30			.61			2.04
Canyon Ferry	Missouri	.20	.40	.02	.12						.08														T.	.15				.39			1.36
Cascade	....do		.23	.06	.25		T.			.01	.05	T.		.15								.03	.02	.35		T.	.42			.04	.06		1.67
Chester	Marias			.40						.03	.20		.12																				0.75
Chinook	Milk	T.	.11		.16						.18			T.									.50	T.									0.95
Clearcreek	....do																																

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana—Contd.																																	
Clydepark	Yellowstone	.01	.28	.06			.07	T.		T.	.30												.29			T.	.25		.04	.61	.04		1.95
Conrad	Marias	T.	.02	T.	.28		T.	T.			T.			.06								T.	T.			T.	.05						0.41
Copper	Missouri	.21	.70	.18							.32			T.								T.	.25	T.				T.	T.	.80			2.46
Crow Agency	Big Horn	.04	.03	T.							.14												.04				.30	T.		.15	.17		0.87
Culbertson	Missouri	.01	.02		1.10						.28	.11				.15					.05									.15			1.87
Cut Bank	Marias	.30			.70						T.	T.											T.			2.33	1.10		.06				4.49
Denton	Missouri	.05	.31	.16	.08		.01	T.		T.	.25	.02		.07								T.				.02	.45		T.	T.	.01		1.43
Dillon	Jefferson	.15	.21	.25		T.															.02	.09	.02		.08	.29	.32		T.	.18			1.61
Dry Wolf Camp	Missouri																																
Dunkirk	Marias		.10		.04						.70	.15		.08									.35			T.							1.42
Ekalaka	L. Missouri	.37			.20				.16		.03	.21						.05	1.27	.57						.17					.10	.10	3.23
Fallon	Yellowstone	.05			.42						.56						.02		.02							T.				T.			1.07
Findon	Missouri		.35	.28	.19		T.	.02		.04	.12	.01										.01	.07	.09		.07	.03		.01	.43	.09		1.81
Flathead Creek	Yellowstone		.20	.12	.28						.42											.20					.02		.22	1.20			2.66
Flatwillow	Missouri	.15	.17	.01	.02					T.	.19												.41			.02	.03		T.	.28	.02		1.30
Forsyth	Yellowstone							.56			.40																			.30	.20		1.46
Fort Benton	Missouri																																
Fort Shaw	do		.14	.08	.08			.06		*	.07	T.		.13								T.				T.	1.10			.40			2.06
Foster	Big Horn	.04	T.	.15							.02	T.											T.		T.		T.			.28	.35		0.84
Garneill	Missouri	.25	.85	.25	1.15					.10	.10	.15	.10	.15				.15				.15							.35	.56	.30		4.61
Geyser	do	.33	.44	.05	.19			.06		.29	.10	.05	.02	.13										.02			.41			.08	.22		2.39
Glasgow	Milk	.34		.14						.06	.10			.01		.10						.22				.04			T.	.07			1.08
Glendive	Yellowstone				.35												.58	T.	T.							T.					T.		0.93
Goldbutte	Marias	.06			.08						.19	.02		.10										.51			.13						1.09
Graham	Powder	.26		.11	.30				.04									.90					.08				.05			.32		2.06
Great Falls	Missouri	.01	.08	.07	.27		T.	.03			.03	.08		.27								T.	T.		T.	.13	.78		T.	.01	.31		2.07
Harlowton	do		.46	.10																			.25				.05			.55			1.41
Havre	Milk	.02	.16	.32	.19					.15	.22	.15		.05									T.			.02							1.28
Hebgen Dam	Madison	.09	.02	.15						.35	T.											.75	.11		.58	.20	.41		.62	1.25			4.53
Helena	Missouri	.29	.01	.31			.08			.01	.04											.02			T.	.42	.12		.08	.09			1.47
Highwood	do		.05	.05	.05		.04				.25	.30	.10	.14								.01	.03			.15	1.20			.10	.10		2.57
Huntley	Yellowstone	.04	.18	.03				.05			.08												.07				.12			.54			1.11
Jordan	Missouri																																
Knobles Ranch	Milk	1.00	.12		.02						.21	.01	.08	T.									.44							.17			2.05
Lewistown	Missouri	.12	.28	.32							.09	.07		T.									.02	.17			.19				.40		1.66
Lonetree	do			.21							.30	.04		.35													.65			.06			1.61
Lothair	Marias				.40					T.	.60			.10									.25			T.							1.35
Lytle	Missouri		.18	.04	.19					T.	T.			.16								T.	.17			T.	.05	.07					0.86
Malta	Milk		.14		.15						.11	.05		.07									.15										0.67
Medicine Lake	Missouri				.90						.10																						1.00
Melstone	do	.04	.15		.04						.22							.07					1.28							.13	.20		2.13
Mildred	Yellowstone	.09	T.		.48			.05			.33											T.	T.							T.	.05		1.00
Miles City	do	.04		T.	.26			.10	T.	.03	.03						.08							T.	T.	.04	T.			.09	.04		0.71
Norris	Madison	.04	.05	.07	.13																	.07	.15			.15	1.01		.17	.33			2.17
Olsen Creek	Jefferson																																
Pinegrove	Missouri	.05	.55	.13	.25					.15	.05	.10					.15													.43			1.86
Pipestone Pass	Jefferson	.63	.02	.04			.07				T.											.16	.26			.49		.12		.32			2.11
Plevna	Yellowstone	.17			.35						.30	T.						.77									.13				.04		1.76
Poplar	Missouri	.21	T.		1.30						.10	T.																		T.			1.61
Red Lodge	Yellowstone		.12	.11							.11						T.						.32				.89	.07		.36	.21		2.19
Renova	Jefferson	.16	.45	.05	.17			.04			.04											.06	.05			.13	.71		.03	.63			2.52
Ryegate	Missouri	.30			.13							.05										.22								.95			1.65
Savage	Yellowstone				.71						.37	T.							.42				.06								.01		1.57
Shelby	Marias	.06			.13									.05								.02	.05			.15							0.46
Sinclay	Yellowstone	T.	T.		.58						.28						T.		T.				.48							T.			1.34
Springbrook	Missouri	T.	T.	T.	.54						.33	.02				.01							.02			T.				.01			0.93
Sunlit Farm	Milk		.17		.51						.18	.23											.49										1.58
Sun River Canyon	Missouri		T.	.21			T.																						.49		.11		0.81
Three Forks	Madison	.10	.40	.03	.20			.08		.10	.17											.03	.03				.15		.02	1.05			2.42
Utica	Missouri	.19	.60	.10	.20							.10															.28			.10	.33		2.14
Valentine	do	.30	.45		.25					.06	.22															3.51				.10			4.98
Valier	Marias	.16	.02	.35								.01		.02		T.						T.	.03	T.		T.	.22			T.			0.81
Wall Rock Mount'n.	Missouri	.03	.87	T.	.45					.10	T.											.02	.30	.24			T.		T.	.48			2.56
Wheaton	do	.09	.40	.15																						T.	.11			.17	.48		1.40
Whites Ranch	Yellowstone																																
White Sulphur Spgs	Missouri	.16	.60	.03	.10			.01		.02	.10		.01									T.	T.	.33		.04				.20			1.81
Wilder	do	T.	.40	T.	.21	T.					.14			T.	.03								.02			.09	.32			.21			1.42
Wolf Creek	do		.17	.13	.09		.21							.01								.34	.01			T.	.67		T.	.03			1.66
North Dakota.																																	
Aplin	Knife		.30	.24							.53	.15	.02		T.			.38	.10				.05										1.77
Arnegard	Missouri																																
Ashley	do		1.32		.32						.42	T.					.35		.97										.49				3.87
Beach	Lt. Missouri		.02		.39				.07		.62	.04				T.	.07	.02	.38							.05							1.66
Belfield	Heart				.38						.58	.13						.08								.38							1.55
Berthold Agency	Missouri		.23		.33						.36	.01			.04	.10	.28	.06					T.							T.			1.41
Bismarck	do		.16		.81						.23	.03				T.		1.39					.06						.04				2.72
Buford	do		.05		.90						.22	.20																					1.37
Carson	Heart				.44						.26	.04			.05		.28	.60	T.				T.			.11	T.						1.78
Dickinson	do		.05		.33				.02		.27	.15				.06		.21	.18								T.		T.	.09			1.36
Edgeley	James		.58		.61						.49	.14			.14		.01												.49				2.46
Epping	Missouri				1.30	.10		T.			.28	.26					.10														.03		2.07
Fullerton	James		.84		.40						.60	.06			.25		.08		T.										.24	.06			2.53
Garrison	Missouri		.20		.14						.56	.07			.08	.10	.58					T.											1.73
Haley	Grand	.15	T.		.22			.10			.65	.20				.45	.10	.70	.40							.15	.25			T.			3.37
Hettinger	do																																
Howard (near)	Missouri																																
Jamestown	James	.08		.18	.04	.78					.25	1.00	.08		.08		.43	.08	.65	.04			.20							.15			4.04
Lamoine	Missouri		.38		.31						.81	.11			T.	T.	1.01	.41	T.														3.03
McHenry (near)	James		.21		.44	.04					.49	.11		.02	.25		.22	.14				.48						.03					2.43
Marmarth (near)	Lt. Missouri	.02	T.	.04	.15				.03		.15	.05						.49	.01			T.				.27	T.			T.	.06		1.27
Marstonmoor	James	T.	.18	T.	.46						.17	1.05			.09		1.09	.47	T.				T.				T.		.39				3.90
Madora	Lt. Missouri																																
Melville	James		.18		.30						.72	T.	T.		.72		2.00	.24											T.				4.16
Mott	Cannon Ball		.02	.22	.04			.05			.28	.05				.24	.57										T.				.03		1.50
Napoleon	Missouri			.03	.02	.56						.20	.03				.05	.80		.48										.14			2.31
New England	Cannon Ball																																
New Rockford	James				.42	.46					.20	.04	.03		.25		.24	.48				.36								T.			2.48
New Salem	Heart		.18		.31							.26	.17				.43	.98								T.				T.	T.		2.33
Orange	Cannon Ball				.58				.13		.18	T.																					0.89

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota—Con.																																	
Ranger	Lt. Missouri				.38						.30	T.				.15	.40		.28							.10			T.		T.		1.61
Ronda	Knife																																
Steele	Missouri	T.	.02		1.06						.28	.01			.19		1.03	1.85	.26										.26		T.		4.96
Turtle Lake	do		.05		.07						.68	.05			.39	.02	.59	.20	.07				.02										2.14
Washburn	do		.10		.22						.55	.05			.07		1.50	.35															2.84
Williston	do		T.		1.19			.01			.59	.11				.53														T.			2.43
South Dakota.																																	
Aberdeen ‖	James	.10		.15	T.	.45						.72			T.		1.35	1.25	T.	.15			T.	.02			T.		.10	T.	.23		4.52
Academy	Missouri	.51	.19	.06						.63	.35				.32	T.	.95	.57	T.				.09			.25							3.92
Alexandria	James			.07							.36	1.18						.29				.05				.49							2.44
Ardmore	Cheyenne	T.									.03	.09						.10	.21	.2		.08		.02	T.	.21		.77	T.			.02	1.78
Armour	Missouri	.98	.15							.30	1.28							.50					.04	.10									3.35
Bellefourche	Cheyenne															.21						.06	.08							.28			0.63
Blunt	Missouri		.11								.37					1.01	T.	2.76					.09			.67			.06				5.07
Britton	James		.05	.12	.58						.49	.23	.05		.46		.50	.06	T.				.10							.06			2.70
Brookings	Big Sioux	.11		.28	.80							.87				T.	.15	.23					.02			.53							2.99
Bryant	do		.32	.20	.45			.16			.50	.62				.02	.90	.61	T.	.08	.10		.05			T.	T.						4.01
Camp Crook	Lt. Missouri	.05			.07				.08		.10	T.				.04		.14								.15	T.			T.	.04		0.67
Canton	Big Sioux		.80									1.46					.08	.05					.47			.51						.24	3.61
Castlewood	do	.03	.01	.14	.91	T.					.04	.84	T.			T.	1.51	.44	T.				.17	T.		.09	.30	T.	T.				4.48
Centerville	Missouri		T.								.07	1.03				T.	T.	.15					.64		.12				.04		T.	.21	2.26
Clark	James	T.	T.	.21	.02				T.		.48	.17	T.			T.	1.27	.36	T.	.06			.13			.06	.92		T.				3.68
Cottonwood	Missouri										.18	.02					T.		.26				.29		T.			.04			.02		0.81
Custer	Cheyenne			.25					.50		.66							.12	.15				.05	.05	.06			.28			.17		2.29
Daviston	Owl																																
Deadwood	Cheyenne			T.													T.						.30								.15		0.45
Deerfield	do	T.		T.	.13				.03		.02	.35				.27		.17	.16		.03		.02	T.	.12	T.					.10		1.40
De Smet	James	.18		1.45							.20	.16	.72	.49		T.	1.09	.50		.21						.53							5.53
Dowling	Cheyenne				.05						.25	.05							15				.25				.30						1.05
Dumont	do			.03							.07	.25											.16			.09					.11		0.71
Eagle Butte	Grand				.33					.04		T.					12	.20					.28			.45		.14			T.		1.56
Eales	Missouri	.02	.01		.21				T.		.11	.47					.23	.43	.01				T.				T.		.13	T.	T.		1.62
Elk Mountain	Cheyenne				.18				.85		.33	.23						.43	.22				.06	.13	.07			.05			.12		2.67
Ellingson	Grand	.06		.05	.18				.11		.37	.02				.17		.52	.34				.02			T.	T.				T.		1.84
Englewood	Cheyenne																																
Eureka	Missouri		.13		.19						.15	.90	.03				.06	.26	.02				.04						.38				2.16
Fairfax	do										.33	1.17						.40					.05	.15				T.	.10				2.20
Faith	Cheyenne	.02		T.	.13				T.		.05						.04	1.24	.10		T.	T.				.10					.02		1.70
Faulkton	James	.07	.33	.03	.09				.20		.27	.05			.10		.63	.45					T.				.03		.05	.23			2.53
Flandreau	Big Sioux	.52	.25	.22								1.30	.12				T.	.30					.10			.60			.80				4.21
Forestburg	James	.04	.30	.32					.06		.88	.37					.51	.32					.27			.89							3.96
Fort Meade	Cheyenne																							.25									0.25
Frederick	James			.10							.69				.28				25					.17						.38			1.87
Goldfield	Cheyenne				.25						.30							.15	1.12				.17							.28			2.27
Greenmont	do										.10												.44							.20			0.74
Greenwood	Missouri						.03		.03		.29	.20						.85					T.					.44	.10				1.94
Hardingrove	Cheyenne				.18					.05							T.	T.	.08					.15			.40						0.86
Hardy Ranger Sta	do																																
Harveys Ranch	do											.67	.18		.03			T.			.10			.21	10					T.	.50		1.79
Hermosa	do	T.									.68				T.				.34				.02	T.	.06	.01	.43				.12		1.66
Highmore	Missouri		T.								.21	.04					.68	.72					.07			.01				.06			1.79
Hopewell	Cheyenne		T.		T.						.10	.04					.02	.79					.22				.26						1.43
Hot Springs	do				1.50					.10	.02	.01					.20	T.	.30				.10	.02	.01			.03			T.		2.29
Howard	Missouri			.26	2.00				T.		.12	.98			T.	T.	.22	.26	.02				.25			.96			.10		T.		5.17
Howell	James	.01		.07	T.				.30		.52	.03				T.	1.35	.41					T.		T.	T.	.05		.02				2.76
Huron	do	.03	.15	.06					.08		1.31	.22					.87	.43		.02			.22			.43			T.				3.82
Ipswich	do	.02	.50	.01	.11						.54	.40	.04				.18	1.60	T.				T.				.04		.22	.24	T.		3.90
Kadoka	White										.25						.15	.05	.04				.08			.03		.03			T.		0.63
Kennebec	Missouri		.09								1.05						.33	.23					.21			.50	T.						2.41
Kimball	do	.08	.03								1.20	.11					.86	.70					.16			.67							3.81
La Delle	James	T.	T.	.08	.12				.10		.65	.25					1.08	1.48	.52				.11		T.	.03	T.		T.	T.	T.		4.42
Lead	Cheyenne										.09	.16						.02					.09								.25		0.61
Lemmon	Grand																																
Marion	Missouri	.38		T.					T.			1.28				T.	T.	.21						T.	T.		.56	.12	.06				2.61
Marston	do		T.		T.						.42	T.				T.	.46	1.76					.07			T.	.26		.05		T.		3.02
Meadow	Grand	.01		T.	.17						.17	T.				.36		.04	.17			T.							T.		T.		0.92
Mellette	James	T.	.70	.13	T.				T.		.74	.09				T.	.53	.39	1.27	.05			T.			T.	.05		.08	.28			4.31
Menno	do	.05					.07		T.		1.12					T.	.20						T.			.22		.43					2.09
Milbank ‖	Minnesota		T.	T.	.04	.50						.18	.39				1.20	.02	.50					.25		T.	T.	T.		.03			3.11
Mitchell ‖	James	.30	.22	.08					.08			1.35					.10	.27	.05				.12			.55							3.12
Mobridge	Missouri		T.		.10	T.					.07						.85		.10														1.12
Murdo	White										.05						2.00								50								2.55
Oelrichs	Cheyenne							.15	.10		.50			T.		T.	.10		.10						25		.33						1.53
Onaka	James	T.	.13	.13	.05			.33			.41					.21		1.32								.08			.81				3.47
Onida	Missouri	T.	.15		.27				.10		.58	.34					.04	.42					T.				.21		.08				2.19
Orman	Cheyenne				.13						.06						.33						.08								.15		0.75
Ottumwa	Missouri							.65			.13	.12					T.						.42										1.32
Parkston	James	.47				.03					1.30						.28								24								2.32
Pearl Creek	do	.18			1.12						.41	1.19					1.19	.32		.02			.63	.07		.55							5.68
Pierre	Missouri		T.						T.		22					1.00	.03	.14	T.				.31			.42			T.		T.		2.12
Pine Ridge	White						.45		.23	.04	.25	.18		T.		.02	.05	.22						T.	.03		T.	.42	.08				1.97
Plankinton	James	.50	T.	.27					.20		1.27	T.					.46	.77					.17			.58			.23		T.		4.45
Pollock ‖	Missouri			.02	.03	.47				T.		.68	.04				.29	.30	.08				T.	T.					.08	.07			2.06
Rapid City	Cheyenne	.05			.09						.13	T.						T.	T.			T.	.07		T.	.06	.01			.21			0.62
Redfield ‖	James	.03		.14					.08			.72	.13				1.76	.05	.27	.20							.04		T.	.03			3.45
Rochford	Cheyenne			.07					T.		.24	T.						.03	.57		T.		.06	.10	.10	.07				.01			1.25
Rosebud	White		T.								.07	1.20			.10		1.49	.35	T.				.03		T.	.06			.02	.02		.01	3.35
Roslyn	Big Sioux		.16	.34							.55	.66	.08		.01		1.28	.18	T.				.05				.07						3.38
Selby	Missouri		.15		.12						.43	.08					.42													12			1.32
Sioux Falls ‖	Big Sioux	.03		T.	.02	.01						1.08	.24			T.	.12	.17	.13	T.			.05	.12		.50	.10	.16		.25	.17	.03	3.18
Sisseton ‖	Minnesota			.30	.05		.30					.22	.14	.12	.02	1.02	.06					20										2.43
Sorum	Owl	.80	T.	.05	.07						.28	T.					.20				.42	T.	.40			.38				.18			2.78
Spearfish	Cheyenne	T.		T.							T.	T.					.04														.44		0.48
Stephan	Missouri		.10		T.				T.		.56	.07				1.26	T.	.67					.23			.45	T.						3.34
Tama	Cheyenne				.40						.20								1.20												.20		2.00
Timber Lake	Grand	T.		T.	.23				T.		.08	T.	T.				.01	.27					T.			T.			.12		T.		0.71
Tyndall	Missouri	T.					.03	.03			.19	1.26				.05	.05	.34					.01			.03		.16	.02				2.17
Vale	Cheyenne	T.									.04												.04			T.					.11		0.19
Vermillion	Missouri						.04	T.				.85						.28					T.	.10		.05							1.32
Waters Ranch	Cheyenne															.25						.12	.12			.15				.37		1.01

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
***South Dakota*—Con.**																																	
Watertown ‖	Big Sioux			T.	.30	.05						.25	.50			T.	1.00	.10	.63					.20			T.	.04		.70			3.77
Wentworth	do	.12	.32	.76	.11							1.20			T.	.02	.12	.29					.15			.85			1.42			5.36
White Lake	Missouri											1.46				.40	.43		.08				.12									2.49
Winner	White	.15	.07				T.				1.12		*	.11		.73	.40	T.					.15		.16		.03					2.92
Wood	do	.10	.18					.30			2.11	.08					.13	.40					.19			.35						3.84
Yankton	Missouri	T.		T.			.15				.22	.75				.10	T.	.30					.10			.04		.07	T.		.09		1.82
Minnesota.																																	
Pipestone	Big Sioux	.44			.04							1.75	.04				.19	.21					.12			.54		.03	1.16	.01	.02		4.55
Colorado.																																	
Arriba	Republican					.04			T.		.08				T.	T.		.60	.48	1.22			.10	.27		.25						T.	3.04
Auldhurst	South Platte		T.			T.			.12	.21					T.	.17	.08	.08	.84	.17	.01		T.	.35	.02	.03	T.				T.		2.08
Bennett (near)	do									.51						.06	.49		.27	T.			T.	.21	.27		T.	.34					2.15
Boulder	do																																
Burlington	Republican							.25	.10								.02	.08	.18	.04				.01	.04			.07					0.79
Cassells	South Platte						T.		T.	.12						.75	.09	.40	.56	.31	.15	.09	T.	T.			T.						2.47
Castle Rock	do					T.	.04		T.	T.					T.	.04	.28	.07	.77	.37				.68	.44	.06							2.75
Cheesman	do						T.			.25						.08	.67	.17	.22	.14	T.		T.	.30									1.83
Cheyenne Wells	Smoky Hill									.10	.45									.28						.05		.11					0.99
Corona ‖	South Platte																																
Denver	do						.01		T.	T.					.01	T.	.08	.09	.51	T.	.02		.03	.89	.05		.01	.06					1.76
Edgewater	do					.18	T.								T.	.07	.30	.13	.98		.05		.10	.38	.33			.02					2.54
Estes Pk. Fish Hatch	do						T.	.08	.45				T.	T.	.19	.18	.10	T.	.35	.40		T.	.15	.70	.15	.05	T.	.07			.05		2.92
Fort Collins	do							T.	.10					.01	.09	.09	.03	T.	.80	.08			.03	1.19	.06	.04		.11			T.		2.63
Fort Lupton	do														.07	.14	.04	.18	.43	1.13			T.	1.18	.02		.03	.08					3.30
Fort Morgan	do														.07	.66		.85					.40	.38			3.25					5.61
Frances	do							.07	.20	.53				T.	.12	.25	.19	1.01	.42	.38	.35	.15	.05	.97	.16	T.	.02	.01					4.88
Frys Ranch	do							T.		.18					.36	.17	.25	.12	.38	.28	.15		.63	.60	.09			.02					3.23
Georgetown ‖	do							.04	.24	.32	.03				.35	.57	.64	.46	.29	T.	.50	.61	.14	.34		T.	T.	.02	T.					4.55
Greeley	do	.48							T.						.17	.10	.04		.18	.16				.84				T.		T.			2.03
Grover (near)	do							.12	T.							.07	T.	.05	.02	.23			1.51	.02	.75	T.		T.					2.77
Hartsel	do					.21			.18	.13					.10	.18	.50	.15	.20	.06	.05	.29	.15	.85									3.05
Hawthorne	do						T.		T.							.43	.17	.02	.36	.09	.14		.14	1.04	.02	T.	.11	.07	T.				2.59
Holyoke (near)	Republican	1.20	T.						T.						T.			.67	.45		.20			T.	T.			1.03			.03		3.58
Idaho Springs	South Platte						T.	T.	.07	.04	T.				.10	.79	.22	.17	.43	.15	.13	.10	T.	.38	.46			T.		.05			3.09
Julesburg	do																																
Kersey	do																																
Laporte	do									.10						.17	.09		.35	.07			.05	1.35	.27								2.45
Le Roy (near)	Republican	1.23					T.									.72	.06	.57		.05				T.	.02			.30			.01		2.96
Longmont ‖	South Platte								.05						.25	.05	.12		.54	.01			.84	.36	.01	.01		.04					2.28
Longs Peak (near)	do								.15	.08					.48	.25	.15	.05	.55	.20	.08			.55	.15	.05		.18					2.92
Merino	do														T.	1.57	.08	.05			T.			.18				.40	.05				2.33
Moraine	do																																
Platte Canyon	do																																
St. Cloud	do							.27						T.	.22	.07	.20	.18	.19	.25			.98	.30	T.			T.					2.66
Sedgwick	do						1.00					T.					.10	.60	.12	T.					.12			.65					2.59
Silver Lake	do																																
Spicer (near)	North Platte							.03	.23					T.		T.		.12	.38	.18	.09	.34		.35									1.72
Sterling	South Platte														T.	.19	.15	T.						.02	.05			.15	.03				0.39
Waterdale	do																																
Wray	Republican																	.78					.51	.06									1.35
Yuma	do		.08						.10	.05					T.	T.		.68					.02	.07	.20	T.		.10					1.30
Nebraska.																																	
Ainsworth	Niobrara	T.	T.						1.45	.16	.16				T.	T.	.55	.92				T.	T.	T.	T.		T.	.09	.31	T.		T.	3.64
Albion	Loup										.29	.42							.46				.01					.05	.56				1.79
Alliance	North Platte	.40					T.		T.		.80			T.	T.	.75		1.50	.25		T.		T.				T.	1.95			T.		5.65
Alma	Republican																		.04				.20	T.	T.			.07			.02		0.33
Arcadia	Loup			.46			.34				.11								.75			.11	.17	T.	T.			.46					2.40
Arden	do			T.			.02				.26				.06		T.	.20					.27		.04		.06	.52					1.43
Ashland	Platte	.09	.45				T.	1.94	T.			.13					T.		.04				.04	.25	T.		.07	.16	.15			.13	3.45
Ashton	Loup							.51				.22							.78					.07	T.				.43				2.01
Atkinson	Elkhorn	T.		.03				.05				1.30						1.10					T.						.60				3.08
Auburn	Missouri	.04						.03	.15			T.	.01							.02				T.		.01			.56				0.82
Aurora	Bloc	.38			.12			.31				.18							.88				.06							.72		.23	2.88
Beatrice	do							.30				.02												.07				.05	.15			.03	0.62
Beaver City	Republican	T.								1.00	.08	.17					T.	.12	.19			T.	T.		T.			.15	.09				1.80
Bellevue	Missouri						.12	.50				T.							T.					.12				.21	.17				1.12
Benkelman	Republican																																
Bertrand	do											.18					.16	.61					.20				.19	.10			.09		1.53
Blair	Missouri					T.	.28	.50				.26					T.		.03				.12	.21		T.	T.		.50			.18	2.08
Blake	Loup			.11	.64			.11		.12	.13	.35				.17		.16	.21								T.		.25				2.25
Bloomfield	Missouri	T.					.02			.10	.23	1.08				T.		.34					.32					.05	.22		.15		2.51
Bradshaw	Blue					T.		.55				.14							.34				.05			T.		.03	1.10			.01	2.22
Brewster	Loup	.23		.17				.25	.02		.06	.23				.13		.41	.08			.01		T.	T.	.02			.20				1.81
Bridgeport	North Platte	.25						.10	T.		T.				T.	.10	T.	.70	.70	.41				T.	.20	.13	T.		.60		.08		3.27
Broken Bow	Loup						.70		.02		.09				T.		T.	.70	.05				.21	T.				.34			T.		2.11
Bruning	Blue	T.				.01													T.					.10	T.				.33			.09	0.53
Burge	Niobrara											1.35		.23			.50		1.00														3.08
Burwell	Loup			.66			.09		.02		.10	.34				.20			.34				.35					.31					2.41
Butte	Niobrara						T.				.25	.90					T.	.77					T.	T.	T.			.12	.09				2.13
Cairo	Platte							.81				.29							.52				.25						.45			.03	2.35
Callaway	Loup	.05					.56					.36					T.	T.	.71						T.		T.						1.68
Cambridge	Republican	.03									T.	1.09				T.	.16		.13			T.	T.	T.	T.	T.	1.10	.10	.05				2.66
Columbus	Loup					.11		.46				.16								.16				.11				.08	1.22			.20	2.50
Crete	Blue							.19	T.			.09							T.				.05					T.	.45	T.		.16	0.94
Culbertson	Republican	.14															T.	.54	.90									T.	T.			.02	1.60
Curly	North Platte							T.	.24			.11		T.		.18	T.	.46	.35					.15			.63	.23					2.35
Curtis	Republican	.24		.13				T.	.18		T.	2.56				T.		.17	1.98				T.	T.	.33	T.	.13		.57			.04	6.33
Dalton	North Platte									.51								1.00	2.60	.48					.20	.05			.70				5.54
David City	Blue				T.	.70	.25	.80				.10					.15		.90				.04	.03	T.			T.	1.12			.25	4.34
Du Bois	Missouri							.13	T.			T.												T.				T.					0.13
Dumas	Loup			.18							.28	.40				.08		.26	.17								.05		.35				1.77
Elm Creek	Platte										.16								.60									.50					1.26
Elsie	Republican	.27	.31					.02	.05	.12							.05	.53	1.16						.10			.05	.11				2.77
Ericson (near)	Loup	.54						.93				.22				.11						.02	.10					.20					2.12
Ewing	Elkhorn			T.			T.	.12	.03		.10	.64				.04		.04	T.				.08		T.		T.		.35				1.40
Exeter	Blue																				.20								.65		T.		0.85

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nebraska—Con.																																	
Fairbury	Blue						T.				.08	T.											.06		T.			.08			T.		0.20
Fairmont	do							.18				.25								T.				T.					.72			.04	1.19
Falls City	Missouri	.03						.15				.03																T.	.43				0.64
Fort Robinson	White								.01	.65		.54						1.10	.80					.30				.11				3.51
Franklin	Republican																						.25							.05		0.30
Fremont	Platte					.20	T.	.73				T.							.12				.22					.08	.65		.28	2.28
Fullerton	Loup						T.	.75				.15							.22				.25							.65	.45	2.47
Geneva	Blue						T.	.32									T.		T.				T.	.17	T.				.35		.12	0.96
Genoa	Loup					T.	T.	.82			.10					T.		.40					.10	T.			T.		.75		.16	2.33
Gordon	Niobrara									.18		.12				.15		.46										.50	.54				1.95
Gosper	Republican							.04				.12							.90				.12		.03		.34		.48				2.03
Gothenburg	Platte	.10	.05					.30		.05	.25	.30						1.40		.05			.02		.05				.30				2.87
Grand Island	do							.62	.02			.25			.04				.46					.22				.03	.20			.24	2.08
Grant	Republican						.07									.05	.20	1.02							.12		.04	.22					1.72
Greeley	Loup			.19			.09			.19	.11	.25							.41				.02		.05			.37					1.68
Guide Rock	Republican				.07																		.10						.22		.06		0.45
Haigler	do																	.73															0.73
Halsey	Loup	.24		.09			.57			.02	.06	.65				.17	.01	.71	T.					T.					.57				3.09
Hartington	Missouri			T.						T.		1.10				T.		.82						.46		T.		T.	.10				2.48
Harvard	Blue																																
Hastings	do		.95								.04				T.				.06	T.				.48				T.	.40				1.93
Hayes Center	Republican	.30	.30						.05		.05							.70						.48		.04		.25					1.69
Hay Springs	White					.34			.24		.16	T.		T.		.19	.60		T.					T.		T.		.34	.40				2.27
Hebron	Blue	.01										.04							T.					.04	T.					.21	.02		T.	0.32
Hemingford	Niobrara									.08		.11						.90	.29	.02		.08			.16			.04	.46				2.14
Hendley	Republican										.40								.45								.02	.16					1.03
Hershey	South Platte	.36							.07	.12		.67						.15	1.06		.06				.07	.03		T.	.40				2.99
Hillside	North Platte	.72	.16					.47		.12	1.50	.02				.07	.21	.72	.32		.06			.23	T.	.02		.16	.87				5.65
Holdrege	Republican											.09												.13				.15	.09			.10	0.56
Hooper	Elkhorn						.26	.45				.16										.12	.34											1.33
Hull (near)	North Platte	.05						.10	T.								1.16	.15	.90					.60	.20			.60			.60		4.36
Imperial	Republican	.55	.23				.13			.12	.05					.14	.13	1.23						T.	T.		.20	.35					3.13
Kearney	Platte							T.			.62								.39				12	T.	T.			.08	.35		T.		0.96
Kimball	South Platte							.10	.10						T.	T.	1.06	.15	.38				.10	.40			.66	.50			.20		3.65
Kirkwood	Niobrara	T.	.17						1.07		1.42							.58					T.				.05		.17				3.46
Kowanda	North Platte	.09							.23			.10						.42	1.60						.31	.09			.35				3.19
Lexington	Platte	.01							.03	.03	T.	.06							1.17					T.	.06				.20				1.65
Lincoln	do	T.					T.	.04	T.		.03	.07					T.		.01				.12	.02		T.	.62	T.	.99		.03	.02	1.95
Lodgepole	South Platte									T.	.04						T.	.65	.40			.02		.13	.14				.33				1.71
Loup City	Loup						.63				.18						.08		1.78				T.					.50					3.17
Loyal	do																																
Lynch	Missouri	.30					T.		.08		.16					.06	T.	.92				T.				.04		.12	.22				1.90
McCool Junction	Blue							.34	T.			.35				.09	T.						.13				T.	.26			.05		1.22
Madison	Elkhorn							T.				.25						T.	.57				.16			T.			.39				1.37
Marquette	Blue				.07			.54			T.	.14							1.25				.11	.01	T.			.01	1.16				3.29
Mary	Loup	.36							T.	.02	.17	.02				.03	T.	1.34											.50			T.	2.44
Mason City	do						.30				.13						1.75					.25				49							2.92
Minatare	North Platte															.10	.82	1.18	.13					.21	.05		.42			.05		2.96
Minden	Blue							.01			.05								.01			T.	.16		T.		.02	.52			.08		0.85
Mitchell	North Platte						.05		.01								.55	.38	.76					.14	.04	.53	.02						2.48
Nebraska City	Missouri							.63	.13										T.										T.				0.76
Nelson	Blue																						.12					.22			.14		0.48
Norfolk	Elkhorn						.06	.02		T.	T.	.30							.22				.40	.08	T.			T.	.65			.06	1.79
North Loup	Loup				T.		T.	.35		T.		T.	.16						.56				T.			.28			.40				1.75
North Platte	Platte	.28	T.				.05	.09	.61		.66					T.		.30	.88					T.	.10			.40			T.		3.37
Oakdale	Elkhorn	T.		T.				.04	.17		.15	.26				.01		.02	.14				.10			.02	.01	.03	.32				1.27
Omaha	Missouri	T.					.20	.40				.10							.16				.08	.14		T.	.17		.67		T.	T.	1.92
O'Neill	Elkhorn	T.						.09		T.		1.01				.21		.71						.32					.51				2.85
Ord	Loup			.42	.81				.06		.22						.02		.52				.09			.02	.23		.19				2.58
Orleans	Republican																																
Osceola	Blue				.10		.23	.60				.08					.07		.37					.10					.50			.52	2.63
Oshkosh	North Platte	.57						T.	.82		T.					T.	.22	1.11	.25	.04				.06	.40			T.	.38				3.85
Palisade	Republican	.16																.98				.09						.22					1.45
Pawnee City	Missouri							.11			.07																						0.18
Paxton	South Platte	.21								.26	.11	.09				.13	.06	.85	1.81					T.	.20				.29				4.01
Plymouth	Blue							.09																.07					.04				0.20
Purdum	Loup	.29						.02		.01	.19				.02	.01		1.55	T.			T.		T.					.33				2.42
Ravenna	do							.41	T.		.29	.08						.02	.84			T.	.21	T.	T.	.01		.48		T.	T.	2.34
Red Cloud	Republican				T.	.05		T.			T.								T.					.08	T.		.02		.38			.05	0.58
St. Libory	Platte							.65			.18								.63				.15						.92				2.53
St. Paul	Loup							.64			.22								.32				.08						.55				1.81
Santee	Missouri											T.	T.	.44				.55										T.	.12				1.11
Schuyler	Platte				T.	.08		.50				.42					.25		.13				.06	.22				.19	.24			.65	2.74
Scottsbluff	North Platte	.08					T.	T.	.11		T.	T.				.10	T.	.35	1.45	T.				.14	.10	T.	.02	.15		.02			2.52
Seward	Blue	.13					.03	T.				.05					T.	T.	.01				T.	.15				.02	.30		.11		0.80
Sidney	South Platte								.01		.04							1.72	.22		.29			.28	.09		.22	.44					3.31
Springfield	Platte			.19				.86			T.	.02					T.		T.				.25			T.	T.		.16			T.	1.48
Springview	Niobrara			.66			T.	.10		.50	T.	1.65					1.00	.52					T.			.12		.30	.10				4.95
Stanton	Elkhorn					.06				.12	.12				T.				.50				.30						.90			.09	2.09
Stapleton	Loup							.75	.11			.23				.10	.15	.05	.39									.40					2.18
Stratton	Republican																	2.00			.13												2.43
Superior	do																												.28				0.28
Syracuse	Missouri						T.	.34	.04			.11							.02									.03	.17			.02	0.73
Table Rock	do							.16				.01																	.80				0.97
Tecumseh	do																																
Tekamah	do		1.82					.23				.06	.17				T.			.05				.33		.05			.25			.28	3.24
University Farm	Platte						T.	.05				.13							.01					.15		T.		1.15	.86			.02	2.37
Valentine	Niobrara		.51				T.		T.		.76	.05		.12		.97	.01	1.27				T.	.01	T.	T.		.01	.23			T.		3.94
Wahoo	Platte	.27						1.47									.13		.08				.10				.53	.50			.30		3.38
Wakefield	Elkhorn				.06			.22				.70							.06				.25			T.			.30		.02		1.61
Walthill	Missouri				.13			.34				.59							.09				.23			.05			.31			.60	2.34
Watertown	Platte										.11								1.88										.63				2.85
Wauneta	Republican		.35					.10	.05								.23	.45						.05				.25					1.25
Weeping Water	Missouri						.03	1.24	T.			.02							T.					.04					.31			T.	1.64
Westpoint	Elkhorn		.46		T.		.27	.15											.33				.22	.21					.66			.10	2.40
Wisner	do	T.			.16		.17	.19		T.		.12						.04	.25				.09	.11					.42			.39	1.94
York	Blue				T.			.27				.16					T.		.17				T	.07			.15	.01	.21			.13	1.17

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Iowa.																																	
Afton	Grand							.12				.76												.06		T.							0.94
Allerton	Chariton							.05				.20																					0.25
Alton	Floyd					1.05						1.33					.07	.04						.86			.18		.02	T.	.08		.03	3.66
Atlantic	Nishnabotna		.08				T.	.10				.10							.01					.01	.14		T.		.01	.04			T.	0.49
Audubon	....do		.55					.06				.90							T.					.06	.31								1.88
Bedford	Missouri						1.65	.93	.05			.69							T.						.06		T.	T.						3.38
Centerville	Chariton	T.							.35			.15													.05				T.					0.55
Chariton	....do							T.	T.			.55												T.				T.					0.55
Clarinda ‖	Nodaway						.45	2.60		.05		.11	T.							T.				T.					.03				3.24
Corning	....do					T.	.41					.81							T.					T.	T.				.15				1.37
Corydon	Chariton					T.	.04	T.				.84							T.					.03									0.91
Council Bluffs	Missouri	T.				1.00	.78	T.				.13							T.	T.			.05	.34		T.	T.	.06	.26			T.	2.62
Creston ‖	....do						T.	.16	.03			T.	.50											.05			T.		T.				0.74
Cumberland	Nodaway							.01				.10												T.									0.11
Denison	Missouri		.50				T.	.02				1.02							.05				.26	.35		.04			.12			.07	2.43
Elliott	Nishnabotna						T.	1.25				1.35							T.					.04		T.			.08				2.72
Greenfield	Nodaway		.04					.15				1.03							T.														1.22
Harlan	Nishnabotna	.11	.65		T.		T.	.17				.26							.01				.10	.35		T.	.03	T.	.14	T.		T.	1.82
Inwood	Big Sioux	T.			.41							1.20				T.	T.	.05					.35	.02		.45	.02		T.		.01	.34	2.85
Lake Park	Little Sioux					.55					.90							T.					.35			.45							2.25
Lamoni	Grand						.60	.40				.32												T.				T.					1.32
Larrabee	Little Sioux																																
Le Mars	Floyd			T.		.25	.02	T.				.86				T.		.17	.01				T.	.32		.09			.05			.03	1.80
Lenox	Missouri						.10	.48				.15												.05					T.				0.78
Leon	Grand							T.	T.			1.20								T.				T.				T.					1.20
Little Sioux	Little Sioux		1.20					.10				.20							.25				.15	.20		.03			.95			.30	3.38
Logan	Missouri	.17	.60					T.				.53							T.				.11	.18					.25			T.	1.84
Mount Ayr	Grand						.07	.26	.04			.70								T.				.10		T.		.01	T.			T.	1.18
Murray	....do						T.	.09				.73												.07		T.		T.	T.				0.89
Northboro	Missouri						.23	.85	T.			.10																	.23				1.41
Odebolt	Little Sioux		.61				T.						1.10						.02				.25	.60	.02								2.60
Onawa	Missouri		.20			T.		.25				.52							.17				.20	.15		.12			.35			.08	2.04
Pacific Junction	....do								T.			.05							T.				.02	.05		T.			.28				0.40
Rock Rapids	Big Sioux																																
Sheldon	Floyd																																
Sibley ‖	Big Sioux					.79						.83	.23				T.	.02	.03					.23		.43	.06					.20	2.82
Sioux Center	Floyd				.42							.90					.15	T.					.84			.31						.02	2.64
Sioux City	Missouri			T.	.11						.01	.58							.01				.20	.15		.05			.35			.08	1.92
Spencer	Little Sioux				.01	.22						1.14				T.		.05					.93			.28		.01	.16		.08		2.76
Thurman	Missouri						.10	.71	T.			.14							T.				T.						.21			.12	1.16
Washta	Little Sioux	.55			.20		.02	T.				.93						T.					.66			.02			.12		.03		2.53
Kansas.																																	
Abilene ‖	Smoky Hill	.08									.04													T.	.26								0.38
Agricultural College	Kansas											.08								.09													0.17
Alton	Solomon					T.				.04														.06	T.		T.		.25			T.	0.35
Atchison	Missouri							.65													T.												0.65
Beloit ‖	Solomon										T.													T.	T.	T.	T.		T.			T.	T.
Blakeman	Republican	.02																	.29					T.	T.			.22	.02				0.64
Blue Rapids ‖	Blue	.23										.07																					0.30
Centralia	....do											.03																	.33				0.36
Chapman	Smoky Hill																																
Clay center	Republican																																
Colby	....do	T.						.03		.03							T.			.32			.03			.02	T.	.16				T.	0.59
Concordia	....do	.01				.04		T.				T.			T.		.09						T.	T.	.01		T.						0.15
Densmore	Solomon																						.21	T.	.03	.14			.14			.21	0.73
Dresden ‖	Republican	T.	T.				T.		T.	T.		T.							.02					.05	T.	.02	T.	.15	.25			T.	0.49
Ellsworth	Smoky Hill									.07		T.								.03				.03					T.				0.13
Emmett	Kansas											T.							.17					T.									0.17
Eskridge	Osage	.30								.05		T.							.44					.46				.03	T.				1.28
Farnsworth	Smoky Hill				.13					T.						T.				.12			T.				.14	.11	T.				0.50
Fort Scott ‖	Osage	2.56	.15							.08	T.														3.82	.05		T.	1.62				8.28
Frankfort	Blue							T.																				.90					0.90
Garnett	Osage	.36								.68				T.						.07				.04	.67	.11		.08	.65				2.66
Goodland	Republican																																
Hanover ‖	Blue	.04						T.				T.	T.											T.		T.							0.04
Harrison	Republican				T.					.67	.01											.11			.05				.10			T.	0.94
Hays ‖	Smoky Hill						T.			.07										.28	.13	T.	.11						.04				0.63
Hill City	Solomon																					T.	.48					.17			.17		0.82
Holton	Kansas							.06	T.			T.												T.				T.					0.06
Horton	....do	.28					.18	.05			T.	T.												T.				T.					0.51
Hoxie	Solomon	T.								T.										T.		T.				T.			.18	.20		T.	0.38
Lawrence	Kansas	.22							.15											.89				.37	T.		.04						1.67
Leavenworth	Missouri	.22					1.25													35		T.			.25								2.07
Lebanon	Solomon					T.			.40															.38	.07			.30					1.15
Lenora	....do					.04						.01										.23			.02	.02	.32	.15			.09		0.88
Leoti	Smoky Hill									.10										.88					.02		.04	.19					1.23
Lincoln	Saline									.15										T.													0.15
Lindsborg ‖	Smoky Hill								.15	.25									.08	.02								.33					0.83
McCracken	....do					.02				.04										.27				.12					.33				0.78
Minneapolis	Solomon	.09						T.		2.25														T.					T.				2.34
Moran	Osage	3.10								.08			.04						T.	.55									.23				4.51
Natoma	Saline																																
Norton	Republican	T.				T.						T.	T.						T.					T.	T.	.08	.20	T.	.18		T.	T.	0.57
Oberlin	....do							T.														T.	.11	T.	T.	.01			.31				0.32
Oketo	Blue							.08			T.	T.											T.										1.49
Olathe	Kansas	.27						.03	.32			T.								.28				.08		T.		.02	1.39		T.		0.98
Oskaloosa	....do							.16												.55				T.									0.71
Ottawa	Osage	.32						.01		.64										.25				.25	.06			.43	.02				1.98
Phillipsburg	Solomon	T.								.92									T.			T.	.06	.03	.05				.10			.18	1.34
Plainville	Saline				.10	.20																		.08		.25			.11				0.74
Pleasanton	Osage	1.33								.06										.14					.46				.59				2.58
Quenemo	....do	.24								.30									T.	T.				.56	.02			T.	.45				1.57
Republic	Republican											.12												.05	.03				.02				0.22
Russell	Smoky Hill									.20										T.				T.									0.20
Russell Springs	....do																																
St. Francis	Republican	.49															.41		1.08				T.		.09			.12					2.19
Salina	Smoky Hill					.07			.11		T.													.10										0.28
Scott	....do			T.																1.54					T.		.46		.22				2.22
Smith Center	Solomon				.18					.39														.08	.05				.16			T.	0.86
Topeka	Kansas	.07						T.				T.							.31	.75				.44				T.	T.				1.57

TABLE 2.—*Daily precipitation for July, 1913. District No. 6*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
***Kansas*—Contd.**																																	
Tribune	Smoky Hill									.12		*					T.		2.35	.15					.15			.25					3.02
Valley Falls	Kansas	.01						.04												.30				.04									0.39
....do		.31						.04	.05			.01		T.					.05	.60				.22	.03			.27	T.				1.58
Vinland	Smoky Hill				.10					1.06					.99					.70				.10				.13				3.08
Wakeeny	....do								.02		T.						T.		.03	.02							.14	.12					0.33
Wallace	Kansas							T.	T.			T.								.12				.02					T.				0.14
Wamego																																	
Missouri.																																	
Amoret	Osage	.90								.09		T.								T.				T.	.62								1.61
Appleton City	....do																						1.19				.19						1.38
Arlington	Gasconade	.30	.20			.45		.55	.79	.22			.44							.15					.05				.35			.28	3.78
Arthur	Osage	.10										.10								.09					.57								0.86
Avalon	Grand	.75					.20	.90	.70			.44								.15				.15				.25	.10				3.64
Bagnell	Osage							1.50					.75															.01					2.26
Bethany	Grand						.52	.46	.30			.78												T.				T.					2.06
Bolivar	Osage	.21										.32													.60			.35	.03				1.51
Boonville ‖	Missouri	.23					.02	.55	.53	.16			.85							.27												.05	2.66
Brunswick ‖	Grand	.70	.35				.05	.78	1.57				.63							2.18					.12								6.38
Clinton	Osage											.45																					0.45
Columbia	Missouri	.02			.01		T.	.68	.84			.98			T.					.76				.01			.02	.03	.03				3.38
Conception	....do						T.	3.62	.04			.25			T.											T.		.02					3.93
Crocker	Gasconade	1.74			.25			.74	.70			.42							T.					T.	T.			.91			.09	.58	5.43
Duncan	Osage	1.22			.08	.02		.15	.06	.17		.35													.59		T.				.06		2.70
Eldon	....do	.16						1.20	.05	.24		.56	.09							T.					.16			.04	.34	.25			3.09
Fayette	Missouri				.08		T.	.69	1.11			.75			T.					.62								T.	T.				3.25
Fulton	....do			.70				.35	.27	.70			.83						.23														3.08
Glasgow ‖	....do	.42	.06					.72	.54	.64			1.15							1.32														4.85
Grant City	Grand						.80	.93	T.			.37								T.				T.				T.	T.				2.10
Harrisonville ‖	Osage	.38	.55					.05		.19		T.								.08					.02		.26						1.53
Hazelhurst	Grand	.06					T.	.55	1.73			1.00			T.									.05				.28					3.67
Hermann ‖	Missouri	.12	.32		T.	T.		.12	.07	.90			.48			T.				.20		.02			.24			.01	.05	.01		T.	2.54
Houston	Gasconade	.91	T.	T.				1.05	.28	.19	.10		.50												T.	T.		.05	T.	T.	1.00		4.08
Jefferson City ‖	Missouri	.05	.10		.01			.45	.35	.05			.82							.54					.04				.21	.15			2.77
Kansas City	....do	.24						1.21	.01			.59								.50				.61		.70							3.86
Kidder ‖	Grand	.02						3.08		.02			1.22							.12					.10								4.56
Lamonte	Missouri	.25		T.				1.30	.35			1.40								T.				.05		T.		T.			T.		3.35
Lebanon	Osage				.25			.07	.68				.12															.23		.12	.90	.41	2.78
Lexington ‖	Missouri	.20	.23					1.90	.10				.75							1.05					.13		.09						4.45
Liberty	....do	.30						1.80	.20			.67								.27				.62									3.86
Lockwood	Osage					T.	T.			.16			.64												1.74			1.60		T.			4.14
Marshall	Missouri	.48					.10	.90	.30			1.38								.41				T.				T.					3.57
Maryville ‖	....do	.04						3.50							.02					.11									.33				4.00
Mount Vernon	Osage	.95						1.63		.13			.48												1.80						.50		5.49
Nevada	....do	.05								.12		.15												.15	1.40	.05		.09	.05				2.06
Oregon	Missouri						T.	.69	T.										T.														0.69
Osceola ‖	Osage		.10							.14			.50							.10					.23			.10	.04				1.21
Pattonsburg ‖	Grand	.05							1.62	.11			1.03						.04														2.85
Rolla	Gasconade	.41			.47	.20	.28	.28	.18	.30	.63									.20	T.			.11		.09		.30	.27		.19		3.91
St. Charles	Missouri	.50		.11	.59								.44						.52						.18			.10					2.44
St. Joseph	....do						T.	1.44	T.			.01												.07				.09	T.				1.61
St. Louis (1)	Mississippi	2.12			.04				T.			.51			.04					.22				.01	.12			.55					3.61
St. Louis (2)	....do	2.78			.05				T.			.40			.09					.30				.01	.14			.77				T.	4.54
Sublett	Chariton	T.						.50				2.00																					2.50
Tarkio	Missouri						.02	.68																				.84					1.54
Trenton	Grand	.03				T.	.77	1.52	.02			1.06			T.				.09					.03				.18					3.70
Unionville ‖	Chariton							.03	T.	T.	T.		T.							T.				T.					T.				0.03
Warrensburg	Missouri	1.19						.76				.91								.05				T.	.02	T.		T.	T.				2.93
Warrenton ‖	....do	.42	.54		.06	.59			T.	.34			.53							.94					.07				.38				3.87
Warsaw	Osage	.04						.10	.02	.03		1.00								.03					.06			.13					1.41
Wheatland	....do	.02																10	.08														0.20

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 6, Missouri Valley.*

Date.	Wyoming.																Montana.											
	Basin.		Cheyenne.		Fort Laramie.		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings.		Dillon.		Havre.		Helena.		Lewistown.		Malta.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	89	38	80	47	90	46	81	42	80	58	81	47	75	49	69	39	80	48	72	40	76	58	71	46	71	49	76	48
2....	90	40	90	52	88	45	81	52	91	60	83	59	71	54	60	46	77	50	70	36	68	52	67	50	66	50	71	45
3....	96	48	82	50	90	52	82	52	85	58	83	56	77	52	60	42	82	50	71	37	72	44	65	50	69	43	78	55
4....	98	54	82	56	91	60	80	50	80	68	80	52	75	50	63	46	80	52	82	45	70	55	70	51	69	48	79	48
5....	100	60	88	51	99	43	88	46	90	52	86	49	84	46	73	47	88	48	85	47	79	51	77	50	80	51	81	52
6....	100	64	90	57	103	53	94	52	96	60	93	52	93	51	83	49	95	53	86	50	91	54	92	55	90	52	91	62
7....	101	64	91	58	98	55	92	56	100	68	93	63	95	58	81	55	102	58	85	55	85	59	85	61	82	53	88	54
8....	98	60	85	57	96	55	92	53	94	64	88	63	86	54	82	47	89	54	84	55	82	52	90	54	83	47	90	47
9....	102	61	81	55	96	50	94	62	92	58	93	65	93	56	82	50	100	53	80	46	94	54	90	57	92	55	93	53
10....	85	48	86	56	95	54	82	61	84	65	87	66	74	55	68	49	81	60	80	40	77	54	70	54	71	57	79	57
11....	90	50	73	45	74	54	72	46	72	53	80	48	66	45	64	39	75	54	78	37	71	53	68	53	61	48	73	51
12....	96	48	83	43	96	34	88	42	82	44	80	49	77	41	70	41	82	40	76	37	74	52	75	53	76	38	78	45
13....	94	46	92	52	101	45	86	50	96	60	79	57	92	43	65	46	87	46	70	31	54	46	62	47	67	49	68	42
14....	98	49	77	58	90	60	87	47	88	55	80	50	76	45	69	32	78	37	76	40	74	46	72	43	71	35	81	45
15....	100	56	82	58	93	59	87	58	92	65	92	58	85	45	73	40	86	43	78	41	75	50	72	45	77	36	79	39
16....	98	48	78	59	90	63	85	54	90	68	86	58	83	51	77	39	87	42	78	42	78	44	79	46	80	38	82	44
17....	102	59	79	54	87	58	84	55	86	72	83	58	81	54	77	43	88	50	79	50	83	44	82	53	82	50	86	46
18....	94	52	73	53	88	53	84	55	82	55	82	61	85	60	80	44	87	52	76	46	85	44	86	54	81	51	89	47
19....	92	51	74	53	86	53	83	56	85	52	79	58	85	53	77	47	88	52	76	39	85	49	86	56	83	45	88	48
20....	96	52	72	48	88	52	84	52	85	61	83	56	87	48	81	45	91	50	71	34	91	54	91	57	86	45	91	50
21....	94	50	80	47	95	51	88	52	92	68	86	57	89	51	74	51	95	52	72	38	82	57	77	63	77	50	90	52
22....	90	48	76	56	83	53	76	55	85	64	80	60	68	57	66	52	71	60	70	41	74	56	73	60	66	52	89	51
23....	89	48	56	51	77	60	66	55	70	60	66	55	64	52	70	51	79	51	69	42	80	59	81	58	74	50	86	50
24....	84	45	68	50	78	50	71	55	65	55	77	54	73	52	62	49	84	53	73	40	87	53	83	53	86	47	90	52
25....	86	45	76	49	89	50	78	50	84	55	79	55	83	51	63	50	90	58	78	35	91	57	81	55	85	46	90	48
26....	84	42	78	50	87	48	75	46	85	54	82	58	65	51	53	46	59	53	76	34	66	50	60	49	67	47	91	36
27....	85	40	66	46	73	47	68	49	83	52	74	48	72	50	62	45	77	50	75	39	79	40	76	44	77	38	93	38
28....	86	41	76	46	89	43	76	45	85	52	78	52	82	49	66	45	87	49	76	41	88	50	80	51	82	48	90	50
29....	87	40	81	47	93	49	80	49	90	55	82	55	85	49	57	38	81	50	73	37	68	52	66	46	53	51	88	42
30....	86	41	81	44	74	45	69	45	81	46	76	49	66	43	63	35	73	49	70	31	76	50	71	44	70	41	87	51
31....	88	36	75	43	88	35	80	40	80	40	80	42	79	40	74	39	85	44	74	35	86	57	82	52	82	39	86	52
Mns..	92.8	49.2	79.1	51.3	89.5	50.8	81.7	51.0	85.2	58.0	82.2	55.2	79.6	50.2	69.8	44.7	84.0	50.4	76.3	41.0	79.1	51.5	76.8	51.9	76.3	46.7	84.2	48.4

Date.	Montana.				North Dakota.										South Dakota.											
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson.		Jamestown.§§		Williston.		Aberdeen.§§		Ellingson.		Huron.		Kadoka.		Kimball.		Pierre.		Rapid City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	79	54	76	52	75	49	73	50	74	47	70	61	73	48	78	58	75	52	80	63	.....	.....	80	61	83	61	76	56
2....	74	65	73	55	78	52	77	52	80	53	70	45	75	55	87	50	84	56	88	56	.....	.....	87	56	97	61	84	58
3....	84	56	81	47	83	45	78	53	80	47	74	54	78	50	77	57	74	49	78	58	.....	.....	80	62	81	65	78	59
4....	76	56	78	54	74	55	68	57	73	54	74	52	63	56	72	54	77	54	83	57	.....	.....	81	56	84	62	79	52
5....	86	54	80	47	81	55	82	56	81	48	76	51	78	54	78	53	85	51	82	56	.....	.....	87	55	91	61	84	54
6....	97	58	88	50	88	46	85	52	82	48	80	52	84	52	87	50	87	49	85	56	.....	.....	89	60	91	61	91	58
7....	95	65	90	60	96	58	96	60	96	58	87	56	91	61	92	57	100	60	91	61	103	74	96	61	101	68	97	63
8....	89	65	82	52	81	53	86	60	89	58	87	62	77	54	90	68	90	60	94	66	96	83	96	68	98	75	88	61
9....	102	57	91	46	87	40	81	51	85	41	77	52	84	45	78	58	87	45	79	55	91	52	84	56	86	60	88	53
10....	86	65	84	63	79	57	76	59	84	61	78	53	78	58	82	56	79	54	84	55	87	67	89	55	89	65	80	60
11....	75	58	76	55	72	56	67	55	75	54	71	58	63	55	72	62	68	55	75	58	76	70	63	53	75	63	69	53
12....	84	54	77	55	.....	.....	75	53	74	50	70	46	71	53	78	54	76	53	82	53	95	67	68	52	84	61	80	46
13....	94	58	82	52	77	41	79	46	81	45	71	47	77	50	80	45	85	48	81	51	93	72	79	56	85	56	94	47
14....	79	55	81	50	80	51	81	60	85	45	73	55	75	51	78	62	79	53	86	65	90	76	82	69	85	67	78	60
15....	91	58	84	52	86	49	84	53	87	55	80	59	83	53	82	66	93	56	86	68	95	72	90	68	92	65	93	57
16....	88	58	86	48	84	59	84	62	82	62	81	62	82	54	84	68	86	62	88	67	87	70	86	67	84	69	81	64
17....	86	55	91	52	90	57	83	60	80	57	82	63	82	52	72	65	81	58	78	63	86	71	80	64	83	65	74	63
18....	89	63	88	52	87	45	80	55	80	52	77	53	81	51	82	64	80	59	85	61	82	65	83	61	87	65	76	58
19....	90	57	87	49	87	44	79	55	80	45	76	54	81	54	83	67	83	51	83	61	89	55	83	60	86	63	83	58
20....	91	60	92	51	85	44	81	50	82	46	77	51	85	50	78	58	82	50	78	52	86	57	77	54	80	59	82	53
21....	96	62	97	53	94	52	93	56	91	53	87	51	90	57	86	56	91	55	86	53	98	60	89	54	92	60	88	54
22....	79	65	86	46	81	58	77	59	80	58	74	58	76	57	77	58	77	59	76	62	88	51	78	62	80	65	74	60
23....	82	60	87	51	82	42	76	50	77	42	71	49	76	47	77	50	77	44	79	51	81	50	78	53	80	57	72	54
24....	85	58	89	54	86	42	81	48	84	45	77	44	83	52	80	48	81	52	80	53	76	55	80	54	79	57	68	56
25....	91	60	97	55	92	49	85	58	88	48	78	50	88	59	77	51	85	52	89	58	96	56	90	59	89	61	88	58
26....	71	62	83	55	76	53	79	58	73	56	83	56	70	49	87	60	69	55	91	64	93	60	90	62	87	66	77	59
27....	80	50	81	41	78	48	73	49	72	40	69	49	72	42	77	60	75	45	77	57	80	50	81	59	78	59	73	50
28....	88	58	92	51	91	52	85	52	89	51	78	45	88	56	84	52	83	61	84	58	96	57	89	57	92	63	87	57
29....	90	60	89	50	.....	55	98	54	96	51	94	56	92	54	101	56	97	52	99	61	105	63	98	63	102	69	93	64
30....	71	56	75	52	71	50	74	56	70	51	98	58	70	53	82	60	67	48	83	62	87	57	84	75	83	61	64	47
31....	87	49	91	50	87	41	86	48	85	44	84	48	84	53	89	52	84	45	85	50	93	43	83	49	88	56	82	51
Mns..	85.6	58.4	85.1	51.8	83.0[b]	49.9[a]	80.7	54.4	81.8	50.5	78.2	53.2	79.0	52.7	83.2	55.6	81.8	53.0	83.7	58.4	90.0[f]	62.4[f]	83.9	59.5	86.8	62.8	81.3	56.2

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 6*—Continued.

Date.	South Dakota.						Colorado.				Nebraska.															
	Sioux Falls.§§		Watertown.§§		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island.§§		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	85	62	78	60	87	65	90	55	89	58	87	61	90	52	92	64	.....	.....	87	65	92	67	86	61	86	65	90	68
2....	89	57	81	52	92	59	96	62	99	58	93	64	104	57	95	64	.....	.....	92	67	96	70	95	61	90	60	94	70
3....	92	60	69	57	93	66	88	61	96	63	95	65	93	58	99	73	.....	.....	95	70	98	74	97	69	93	73	95	74
4....	93	62	80	55	96	64	92	62	95	63	98	62	89	57	105	75	.....	.....	100	73	103	75	92	70	96	67	99	74
5....	82	58	81	54	86	61	94	60	95	67	93	74	96	49	92	65	.....	.....	93	68	93	68	89	56	88	60	90	72
6....	88	58	83	55	90	65	93	64	104	64	100	61	98	60	99	72	.....	.....	98	71	90	70	94	65	91	62	86	66
7....	92	60	82	55	91	66	94	63	103	63	102	67	104	54	98	69	.....	.....	99	72	98	70	99	63	91	66	89	66
8....	90	66	89	66	92	70	92	61	99	65	101	74	100	58	95	76	.....	.....	98	75	90	75	97	63	96	67	91	74
9....	79	56	75	51	81	62	87	60	92	63	93	89	92	54	87	71	.....	.....	93	75	87	66	86	63	81	61	83	68
10....	84	52	80	51	85	59	92	64	93	65	87	52	93	62	90	59	90	65	91	55	90	56	86	61	85	53	83	62
11....	74	56	73	56	78	60	81	56	85	60	82	61	76	55	82	66	72	52	85	69	86	65	77	56	77	59	82	68
12....	76	54	75	51	84	59	92	51	91	50	90	48	98	39	91	56	85	42	90	54	92	59	90	47	86	54	89	61
13....	86	52	78	44	92	56	99	62	105	59	104	68	101	62	103	75	100	54	100	72	102	74	98	68	95	59	100	69
14....	93	62	80	60	89	72	89	66	98	69	98	71	87	61	93	73	88	56	104	80	106	76	88	64	89	73	104	78
15....	95	70	84	62	92	70	86	62	101	61	105	71	96	56	105	71	92	57	105	70	106	75	100	67	98	69	101	77
16....	87	68	86	62	92	74	83	65	101	70	107	71	92	60	103	79	82	62	108	80	109	81	95	64	94	69	104	80
17....	78	70	75	65	82	67	83	59	94	56	100	63	85	60	95	73	80	61	105	68	106	74	89	64	84	68	100	74
18....	85	58	83	54	81	62	73	59	84	64	81	64	85	58	72	65	80	61	92	71	84	64	76	62	71	57	82	66
19....	82	60	80	57	84	61	71	57	82	56	91	51	89	54	88	56	81	50	90	56	90	56	84	55	84	54	88	61
20....	78	52	76	52	78	55	76	56	83	53	85	52	88	56	81	66	83	52	88	58	83	63	81	56	78	55	79	62
21....	86	51	82	50	85	52	81	58	87	55	94	52	89	57	91	55	88	53	88	50	88	54	88	56	87	49	87	62
22....	72	55	71	53	79	61	85	59	96	65	97	64	82	57	99	61	75	55	97	61	98	66	89	63	95	63	94	66
23....	77	55	73	49	77	59	66	56	75	56	77	60	69	58	77	62	65	53	82	65	79	65	73	61	78	58	78	64
24....	82	55	78	45	81	50	75	53	74	57	77	52	66	54	90	55	61	54	83	65	83	58	68	59	82	50	80	62
25....	84	58	78	48	90	62	83	56	94	59	94	58	92	57	94	64	90	54	91	64	93	68	93	56	90	62	86	66
26....	93	58	90	59	98	71	87	54	95	53	95	63	96	49	99	72	88	54	100	71	101	73	94	55	95	70	99	70
27....	78	60	73	53	79	63	66	53	87	55	94	59	78	52	87	59	75	48	93	69	88	70	83	60	82	63	87	72
28....	83	58	79	52	88	62	81	50	93	51	95	54	88	49	97	61	88	50	97	65	98	64	87	57	87	61	93	64
29....	95	60	92	57	97	66	90	54	99	64	100	63	93	52	99	69	90	65	100	73	102	74	93	60	95	62	100	76
30....	94	65	87	60	95	67	88	56	96	53	104	64	78	52	104	73	85	50	103	75	103	74	87	63	98	72	101	77
31....	82	65	82	53	83	56	79	50	86	45	85	58	84	41	85	58	81	36	84	63	83	64	82	47	81	56	80	65
Mns..	84.9	59.1	79.8	54.8	87.0	62.6	84.9	58.2	92.6	59.4	93.7	61.8	89.4	54.8	93.1	66.4	82.7[1]	53.8[1]	94.5	67.4	94.1	68.0	88.3	60.4	87.8	61.8	90.8	68.8

Date.	Valentine, Nebr.		Iowa.						Kansas.										Missouri.							
			Clarinda.§§		Sibley.§§		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeeney.		Columbia.		Kansas City.		St. Louis.		Unionville.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	81	63	91	64	86	57	90	67	88	59	90	64	88	65	84	70	94	60	85	72	82	72	85	68	86	70
2.....	96	59	94	67	86	57	90	62	96	63	95	72	95	69	90	69	97	67	92	70	90	71	87	73	90	63
3.....	77	60	97	66	93	61	94	73	100	69	97	71	94	74	90	71	96	71	90	74	91	75	88	74	92	66
4.....	87	57	95	70	93	63	94	70	93	69	103	75	101	74	94	72	105	71	92	74	94	74	87	73	93	70
5.....	87	54	93	66	80	60	86	65	103	70	107	75	100	76	95	76	94	68	95	71	97	77	95	78	90	72
6.....	91	62	83	63	86	55	90	66	99	75	106	72	106	74	95	74	104	68	84	70	91	75	84	72	86	60
7.....	98	65	89	63	89	58	90	67	91	68	105	76	106	83	96	70	106	70	88	66	88	64	86	72	93	60
8.....	94	68	89	65	91	63	96	73	91	67	102	80	110	80	104	78	105	72	88	68	99	74	90	72	90	66
9.....	83	62	87	70	76	58	81	63	86	66	94	68	100	70	93	71	92	66	94	71	90	71	94	71	91	67
10.....	85	61	84	54	83	49	81	58	91	65	93	58	90	51	88	62	93	64	83	63	84	63	84	68	85	53
11.....	73	57	87	58	75	57	79	63	91	64	88	65	95	75	96	71	89	70	89	67	94	70	87	68	90	56
12.....	85	52	89	57	79	55	85	61	90	64	93	57	95	59	91	64	91	54	87	64	90	67	86	69	86	60
13.....	97	58	97	62	83	50	95	59	106	66	101	76	105	73	93	72	110	73	93	71	95	73	92	71	95	62
14.....	82	62	100	75	94	65	96	76	102	80	110	82	105	67	100	78	109	76	94	74	98	79	92	76	96	70
15.....	94	65	100	75	94	69	98	72	104	70	107	74	109	80	103	76	104	70	94	75	103	78	85	77	98	75
16.....	83	67	106	71	91	72	96	76	103	65	109	76	109	80	104	75	104	74	97	74	102	78	96	77	100	73
17.....	76	64	104	65	85	69	87	67	95	70	106	78	105	79	102	74	104	71	100	75	101	79	101	79	102	74
18.....	79	64	89	67	84	59	77	64	89	63	91	72	101	71	95	75	93	67	96	75	91	76	102	79	90	70
19.....	82	58	90	56	84	53	85	60	79	57	93	62	98	67	88	63	78	58	86	62	85	62	85	65	91	60
20.....	79	56	83	60	78	53	79	59	84	55	87	61	90	56	84	68	87	59	83	65	83	69	84	70	85	59
21.....	89	60	88	53	83	50	86	54	89	55	91	55	94	54	84	61	90	58	82	61	82	64	81	64	90	50
22.....	77	62	94	54	71	56	88	63	95	65	98	68	101	75	94	63	94	63	90	59	93	66	84	66	91	56
23.....	75	57	81	61	76	55	79	61	73	60	80	68	90	68	81	69	89	61	89	70	81	69	93	72	85	60
24.....	69	56	85	59	80	50	80	54	78	60	83	61	91	64	82	64	82	58	84	67	80	65	83	68	85	56
25.....	93	61	85	61	79	54	84	61	93	56	93	63	95	64	86	64	95	57	87	64	84	67	85	64	86	58
26.....	90	57	100	67	92	58	95	70	95	66	101	75	103	69	96	72	98	64	95	69	95	71	91	71	92	62
27.....	76	56	89	70	80	60	82	67	91	63	96	69	102	80	91	70	95	64	85	71	88	72	89	69	88	66
28.....	86	56	95	64	87	57	87	63	89	56	100	67	99	84	99	71	94	54	95	71	97	75	93	74	95	63
29.....	94	61	103	65	97	58	98	70	99	66	101	76	102	81	99	77	99	58	100	76	99	79	98	78	101	70
30.....	87	56	102	70	98	62	100	72	101	64	103	78	103	75	100	76	103	69	98	73	100	79	96	78	100	72
31.....	81	44	87	68	80	59	82	60	91	55	88	61	98	70	90	71	89	60	98	72	90	73	97	75	95	71
Mns.....	84.7	59.4	92.1	64.1	84.9	58.1	88.1	65.0	92.7	64.2	96.8	69.5	99.4	71.2	93.1	70.5	96.2	65.0	90.7	69.5	91.5	71.8	89.7	72.0	91.5	64.2

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

Warm weather prevailed generally, except that from the 19th to the 22d maximum temperatures were below 90° over the northern and western portions of the district. The precipitation was unevenly distributed, being heavy in some localities and light in others. There were no well-defined rainy periods, showers occurring every day, except that over the eastern portion of the district the larger portion of the precipitation occurred from the 1st to the 13th and 23d to 31st. Severe drought was prevailing in parts of Oklahoma and the Missouri and Kansas areas at the close of the month.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

States and portions of States lying within District No. 7.	Mean temperature.	Departure from the normal.	Mean precipitation.	Departure from the normal.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days.				Prevailing wind direction.
							With 0.01 inch or more.	Clear.	Partly cloudy.	Cloudy.	
Colorado	68.9	+0.1	2.28	−0.18	2.12	0	5	17	9	5	sw.
New Mexico	72.1	+0.2	1.42	−1.51	1.73	0	4	18	10	3	sw.
Texas	81.6	+2.0	2.52	−0.91	3.50	0	3	20	7	4	s.
Kansas	82.4	+3.9	1.48	−2.33	2.76	0	5	20	9	2	s.
Oklahoma	83.8	+3.6	2.38	−0.72	7.00	0	4	20	8	3	s.
Missouri	79.6	+3.0	4.10	−1.12	3.36	0	8	17	9	5	s.
Tennessee	80.4	+1.2	4.74	+0.85	2.40	0	8	18	7	6	s.
Arkansas	81.5	+1.6	4.31	+0.35	4.60	0	8	13	14	4	sw.
Mississippi	81.4	+0.7	3.89	−0.66	7.00	0	9	14	10	7	sw.
Louisiana	81.6	−0.2	7.19	+0.57	6.85	0	12	14	8	9	s.

TEMPERATURE.

Mean temperatures ranged from 0.1° to 5.4° above the normal, except that over southeastern Louisiana, the southern portion of the Mississippi area, southwestern Arkansas, the western portion of the New Mexico area, and the northwestern portion of the Colorado area there was a deficiency of from 0.2° to 2.7°. Maximum temperatures of 104°, or higher, were reported from 1 or more, stations in all States or parts of States in the district. Minimum temperatures were generally below 50° over the northern and western portions of the district, and from 50° to 60° over the southeastern portion, except in southern Louisiana where they were from 60° to 65°, generally. The highest temperature recorded, 114°, occurred at Coolidge, Kans., and a maximum reading of 111° was reported from Meeker, Okla. The lowest temperature recorded, 25°, occurred at Westcliffe, Colo., and a minimum reading of 28° was recorded at Elizabethtown, N. Mex. "Hot winds" were reported from parts of Oklahoma and the Texas area.

PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—Less than the normal amount of precipitation occurred over the greater portion of this drainage area, except in Arkansas. Over the headwaters of the Arkansas River in Colorado the average from 38 stations was 2.30 inches, about 0.2 inch below the normal. The average from 43 stations in those portions of the Arkansas Valley proper that lie in Kansas and Oklahoma was 1.66 inches, about 1.9 inches below the normal. Over the headwaters of the Canadian River in New Mexico the average from 37 stations was 1.42 inches, about 1.7 inches below the normal. In those parts of the Canadian Valley that lie in Texas and Oklahoma the average from 29 stations was 2.12 inches, about half an inch below the normal. The average from 21 stations in the Cimarron Valley was 1.74 inches, about 1.3 inches below the normal. Over the Verdigris Valley the average from 10 stations was 2.05 inches, about half the normal amount, and over the Neosho Valley the average from 20 stations was 2.33 inches, about 2 inches below the normal. Below the Oklahoma-Arkansas line the average from 15 stations in the Arkansas Valley proper was 4.36 inches, about 0.5 inch above the normal.

Red River and tributaries.—The precipitation was below the normal over this drainage area, except at a few scattered stations. In those portions of the Red River Valley that lie in New Mexico, Texas, and Oklahoma the average from 47 stations was 2.67 inches, about 0.2 inch below the normal. Below the Texas-Arkansas line the average from 20 stations was 3.23 inches, about 1.5 inches below the normal.

Mississippi River south of St. Louis and small tributaries.—The precipitation was unevenly distributed over this drainage area, being heavy in some localities and comparatively light in others. In the immediate Mississippi Valley the average from 40 stations was 4.70 inches, about 0.2 inch below the normal. The average from 22 stations in the valley of the White was 4.74 inches, about 0.6 inch below the normal. Over the Yazoo Valley the average from 23 stations was 3.75 inches, about 0.3 inch below the normal. The average for the valley of the Big Black was 3.84 inches, about 0.8 inch below the normal. The amounts from 18 stations in the Ouchita Valley averaged 4.52 inches, about 0.2 inch in excess of the normal.

Louisiana coastal plain.—The precipitation was unevenly distributed over this drainage area, being exceptionally heavy in some localities. The average from 36 stations was 9.15 inches, about 1.6 inches above the normal.

RIVERS.

There was a rise in the Arkansas, Cimarron, Canadian, and Washita Rivers in Oklahoma during the early part of the month, but the water fell rapidly and all streams were below the normal stage at the close of the month.

Stages in the lower Arkansas River were unusually low, navigation being suspended at Little Rock during the entire month. The White River was also unusually low.

No material changes occurred in the Red and Ouachita Rivers.

The Mississippi River fell steadily, except that there was a slight rise toward the close of the month.

DRY PERIODS IN LOUISIANA.

By EDWARD D. COBERLY, Local Forecaster, New Orleans, La.

In the Monthly Weather Review for July, 1912, Climatological District No. 7, pages 1062–1067, the author published in detail the excessive rainfall for all stations in Louisiana covering the entire period of record. This publication has been of great value to engineers and others interested in irrigation and drainage problems, and with a view to meeting still further the demands of these interests, and of agricultural interests as well, the following tabulation of the dry periods in this State has been undertaken. It is believed that this will be of great value in connection with the problems of drainage, water storage, and choice of crops, as it shows the periods without precipitation which might prove injurious to growing crops were no steps taken to provide the proper amount of moisture during these dry periods.

For better facilitating the use of the data the State has been divided into four parts, northwest, northeast, southwest, and southeast and the stations arranged alphabetically in each section. All periods of 25 days or more with no rain or only a trace have been given, with the total number of days and the dates between which they occurred, both dates inclusive in each case. A few extended periods with more rain than a trace, but insufficient for agricultural needs, have been included, with the amount of precipitation given in each case.

NORTHWESTERN LOUISIANA.

DODSON WINN PARISH.

October 10 to November 8, 1909, 30 days.
April 16 to May 16, 1910, 31 days.
May 22 to June 17, 1911, 27 days.
September 22 to October 16, 1912, 25 days.
November 1 to 26, 1912, 26 days.

GRAND CANE, DE SOTO PARISH.

August 25 to September 18, 1908, 25 days with only 0.11 inch.
September 29 to November 1, 1908, 34 days.
April 17 to May 16, 1910, 30 days.
July 9 to August 13, 1910, 36 days.
October 22 to November 15, 1910, 25 days.
November 18 to December 28, 1910, 41 days.
May 22 to June 18, 1911, 28 days.
September 3 to October 17, 1912, 45 days with only 0.06 inch.

LIBERTY HILL, BIENVILLE PARISH.

August 28 to September 28, 1893, 32 days with only 0.04 inch.
September 30 to October 31, 1893, 32 days with only 0.21 inch.
June 25 to August 8, 1896, 45 days.
November 29 to December 30, 1896, 32 days with only 0.25 inch.
October 4 to November 3, 1902, 31 days.
September 15 to November 1, 1904, 48 days with only 0.15 inch.
March 21 to April 28, 1903, 39 days with only 0.10 inch.
October 8 to December 3, 1903, 57 days with only 0.32 inch.
August 23 to October 1, 1907, 40 days with only 0.11 inch.
September 28 to November 1, 1908, 35 days.
April 16 to May 16, 1910, 31 days.
November 17 to December 12, 1910, 27 days.
October 23 to December 2, 1912, 41 days with only 0.17 inch.

LOGANSPORT, DE SOTO PARISH.

June 1 to July 8, 1907, 38 days with only 0.29 inch.
September 27 to October 31, 1908, 35 days.
July 8 to August 4, 1910, 28 days with only 0.12 inch.
November 17 to December 12, 1910, 26 days with only 0.04 inch.
May 22 to June 18, 1911, 27 days.
September 18 to November 5, 1912, 49 days with only 0.30 inch.

MINDEN, WEBSTER PARISH.

August 29 to September 24, 1893, 27 days.
October 2 to 28, 1894, 27 days.
August 21 to September 22, 1895, 33 days with only 0.02 inch.
June 8 to August 10, 1896, 64 days.
August 17 to October 10, 1899, 55 days with only 0.10 inch.
April 24 to May 10, 1898, 28 days with only 0.15 inch.
August 12 to September 19, 1900, 39 days with only 0.06 inch.
October 13 to November 9, 1901, 28 days.
December 15, 1901, to January 25, 1902, 42 days with only 0.25 inch.
June 1 to June 27, 1902, 27 days.
March 29 to April 29, 1903, 32 days.
August 27 to October 4, 1903, 39 days with only 0.10 inch.
October 6 to December 11, 1903, 67 days with only 0.17 inch.
August 14 to October 4, 1904, 52 days with only 0.19 inch.
October 17 to December 17, 1906, 32 days with only 0.10 inch.
February 3 to 28, 1907, 26 days with only 0.09 inch.
March 2 to 29, 1907, 28 days with only 0.02 inch.
September 29 to November 1, 1908, 34 days with only 0.03 inch.
April 18 to May 16, 1910, 29 days with only 0.07 inch.
July 10 to August 10, 1910, 32 days with only 0.26 inch.
May 22 to June 19, 1911, 29 days with only 0.17 inch.

PLAIN DEALING, BOSSIER PARISH.

August 27 to September 24, 1896, 29 days.
October 14 to December 3, 1903, 50 days with only 0.05 inch.
August 26 to October 4, 1907, 38 days with only 0.34 inch.
September 28 to November 21, 1908, 55 days with only 0.31 inch.
October 7 to November 10, 1910, 35 days with only 0.10 inch.

ROBELINE, NATCHITOCHES PARISH.

June 8 to July 5, 1896, 28 days.
June 16 to July 11, 1897, 26 days.
August 19 to October 10, 1897, 53 days with only 0.43 inch.
April 19 to May 16, 1901, 28 days.
November 4 to December 1, 1901, 28 days.
December 15, 1901, to January 19, 1902, 36 days.
June 1 to 27, 1902, 27 days.
August 6 to September 2, 1902, 28 days.
October 4 to November 3, 1902, 31 days.
March 21 to April 29, 1903, 40 days with only 0.50 inch.
August 22 to October 4, 1903, 44 days with only 0.45 inch.
January 23 to March 18, 1906, 55 days with only 0.37 inch.
March 30 to April 28, 1906, 30 days with only 0.03 inch.
October 16 to November 17, 1906, 33 days.
February 28 to March 29, 1907, 30 days with only 0.04 inch.
June 1 to 27, 1907, 27 days.
July 25 to August 22, 1907, 29 days.
October 9 to November 18, 1907, 40 days.
December 14, 1907, to February 4, 1908, 53 days with only two showers, giving a total of 0.63 inch.
February 13 to March 8, 1908, 25 days.
September 27 to November 1, 1908, 37 days.
March 16 to April 20, 1909, 36 days with only 0.09 inch.
January 7 to February 1, 1910, 26 days.
April 17 to May 16, 1910, 30 days.
October 14 to November 15, 1910, 33 days.
May 22 to June 22, 1911, 28 days.
November 2 to December 1, 1912, 30 days with only 0.10 inch.

RUSTON, LINCOLN PARISH.

April 14 to May 13, 1896, 30 days.
May 17 to June 20, 1896, 34 days with only 0.11 inch.
September 16 to October 10, 1897, 25 days.
June 1 to July 5, 1901, 35 days with only 0.25 inch.
May 31 to June 27, 1902, 28 days.
March 22 to April 29, 1903, 39 days.
August 18 to September 11, 1903, 25 days.
September 17 to December 3, 1903, 78 days with only 0.10 inch.
September 3 to November 1, 1904, 60 days with only 0.15 inch.
October 16 to November 16, 1906, 32 days.
September 26 to November 1, 1908, 36 days.
October 10 to November 21, 1909, 43 days.
April 17 to May 17, 1910, 31 days.
August 12 to September 7, 1910, 27 days.
October 5 to November 4, 1910, 31 days.
November 28 to December 22, 1910, 25 days.
February 20 to March 16, 1911, 25 days.
May 23 to June 17, 1911, 26 days.
September 12 to October 8, 1911, 27 days.

SHREVEPORT, CADDO PARISH.

May 13 to June 9, 1899, 28 days with only 0.15 inch.
July 25 to August 26, 1899, 32 days with only 0.12 inch.
September 25 to October 20, 1900, 26 days with only 0.08 inch.
December 15, 1901, to January 22, 1902, 39 days with only 0.14 inch.
June 1 to 26, 1902, 26 days with only 0.34 inch.
August 1 to 31, 1902, 31 days with only 0.02 inch.
October 4 to November 2, 1902, 30 days with only 0.32 inch.
March 29 to April 28, 1903, 31 days with only 0.03 inch.
October 17 to December 11, 1903, 56 days with only 0.08 inch.
September 24 to November 19, 1904, 57 days with only 0.18 inch.
October 19 to November 16, 1906, 29 days with only 0.14 inch.
September 1 to October 2, 1907, 33 days with only 0.09 inch.
September 28 to October 31, 1908, 34 days.
April 17 to May 16, 1910, 30 days with only 0.01 inch.
July 14 to August 9, 1910, 27 days with only 0.01 inch.
May 22 to June 18, 1911, 28 days.

NORTHEASTERN LOUISIANA.

ALEXANDRIA, RAPIDES PARISH.

September 16 to October 28, 1894, 43 days with only 0.30 inch.
May 5 to June 6, 1896, 33 days with only 0.31 inch.
September 16 to October 27, 1897, 42 days with only 0.15 inch.
April 24 to June 10, 1899, 48 days with only 0.04 inch.
October 13 to November 12, 1901, 31 days.
September 29 to October 31, 1908, 33 days with only 0.15 nich.
January 4 to February 8, 1911, 36 days.
May 22 to June 18, 1911, 28 days.
September 6 to October 7, 1911, 32 days.
November 2 to December 1, 1912, 30 days with only 0.20 inch.

CHENEYVILLE, RAPIDES PARISH.

September 13 to October 28, 1894, 46 days.
September 25 to October 29, 1895, 35 days with only 0.09 inch.
September 14 to October 27, 1897, 44 days with only 0.23 inch.
April 24 to May 24, 1899, 31 days.
September 20 to October 31, 1899, 42 days.
May 30 to July 6, 1902, 38 days with only 0.20 inch.
October 18 to November 30, 1903, 43 days.
November 30 to December 25, 1904, 26 days.
September 27 to November 1, 1904, 36 days.
February 15 to March 22, 1908, 37 days.
January 7 to February 4, 1909, 29 days.

CALHOUN, OUACHITA PARISH.

August 27 to November 3, 1893, 69 days with only 0.59 inch.
July 6 to August 1, 1896, 27 days.
August 28 to October 9, 1899, 44 days with only 0.49 inch.
March 22 to April 28, 1903, 38 days.
September 17 to November 3, 1904, 48 days.
October 6 to 31, 1904, 26 days.
September 6 to October 4, 1904, 29 days.
May 7 to 31, 1906, 25 days with only 0.02 inch.
October 18 to November 17, 1906, 31 days.
September 27 to October 31, 1908, 35 days.
October 10 to November 7, 1909, 29 days.
April 17 to May 16, 1910, 30 days.
September 5 to October 8, 1911, 34 days.
September 22 to October 17, 1912, 26 days.

COLLINSTON, MOREHOUSE PARISH.

October 18 to November 16, 1906, 30 days.
October 9 to November 7, 1909, 30 days.
March 12 to April 15, 1910, 35 days.
April 17 to May 15, 1910, 29 days.

FARMERVILLE, UNION PARISH.

August 26 to November 2, 1893, 69 days with only 0.46 inch.
October 3 to 27, 1894, 25 days.
May 21 to June 23, 1896, 34 days.
June 25 to August 17, 1896, 54 days with only 0.17 inch.
September 8 to October 9, 1899, 32 days.
September 22 to October 20, 1900, 29 days.
October 12 to November 11, 1901, 31 days.
August 1 to 31, 1902, 31 days with only 0.20 inch.
October 4 to November 4, 1902, 32 days.
March 21 to April 28, 1903, 39 days.
September 26 to October 31, 1908, 36 days.
October 9 to November 7, 1909, 30 days.
April 16 to May 15, 1910, 30 days with only 0.18 inch.
May 21 to June 17, 1911, 27 days.
August 29 to October 9, 1911, 42 days with only 0.25 inch.
September 22 to October 17, 1912, 26 days.
October 7 to November 5, 1912, 30 days.

FERRIDAY, CONCORDIA PARISH.

March 11 to April 4, 1910, 25 days.
April 17 to May 16, 1910, 30 days with only 0.14 inch.
September 7 to October 2, 1910, 26 days.
September 19 to October 16, 1912, 28 days.
January 4 to February 8, 1911, 36 days.
February 20 to March 18, 1911, 27 days.
August 29 to November 6, 1911, 69 days with only 0.39 inch.

JENA, LA SALLE PARISH.

September 3 to October 6, 1911, 34 days.
September 22 to November 12, 1912, 53 days with only 0.45 inch.

LAARK, MOREHOUSE PARISH.

September 22 to October 31, 1912, 40 days.

MONROE, OUACHITA PARISH.

June 30 to August 1, 1896, 34 days.
November 29 to October 30, 1896, 32 days with only 0.12 inch.
August 21 to October 10, 1897, 51 days with only 0.10 inch.
August 29 to October 9, 1899, 42 days with only 0.18 inch.
June 1 to July 13, 1902, 43 days with only 0.40 inch.
September 18 to December 4, 1903, 79 days with only 0.48 inch.
May 8 to June 1, 1906, 25 days.
October 19 to November 16, 1906, 29 days.
September 2 to October 4, 1907, 33 days with only 0.16 inch.
October 10 to November 13, 1909, 35 days.
April 17 to May 16, 1910, 30 days.
April 28 to June 17, 1911, 50 days with only 0.03 inch.
September 6 to October 9, 1911, 34 days.

NATCHEZ, MISS.

October 4 to 28, 1894, 25 days.
July 13 to August 7, 1896, 26 days.
August 27 to October 7, 1896, 42 days with only 0.20 inch.
September 17 to October 11, 1897, 25 days.
April 24 to June 3, 1898, 41 days with only 0.25 inch.
April 23 to June 5, 1899, 44 days.
October 9 to November 19, 1899, 42 days.
April 20 to May 18, 1901, 29 days.
September 15 to November 2, 1901, 49 days with only 0.20 inch.
March 29 to April 29, 1903, 32 days with only 0.15 inch.
October 9 to December 31, 1903, 56 days.
September 26 to November 12, 1904, 48 days.
October 18 to November 14, 1906, 28 days.
October 11 to November 4, 1909, 25 days.
September 8 to October 2, 1910, 25 days.
January 5 to February 8, 1911, 35 days.
February 21 to March 18, 1911, 26 days.
May 22 to June 18, 1911, 28 days.
August 12 to September 18, 1912, 38 days.

NEWELLTON, TENSAS PARISH.

August 23 to September 22, 1908, 31 days.
September 28 to November 1, 1908, 34 days.
April 17 to May 16, 1910, 30 days.
November 28 to December 28, 1910, 31 days.
September 6 to October 8, 1911, 33 days.
August 12 to October 17, 1912, 67 days with only 0.37 inch.

SIMMESPORT, AVOYELLES PARISH.

February 21 to March 18, 1911, 26 days.
May 22 to June 18, 1911, 27 days.

TALLULAH, MADISON PARISH.

September 23 to October 17, 1912, 25 days.

VICKSBURG, MISS.

September 14 to October 10, 1897, 27 days.
April 24 to May 22, 1899, 29 days with only 0.02 inch.
April 19 to May 19, 1901, 31 days with only 0.10 inch.
June 2 to 30, 1902, 29 days with only 0.06 inch.
March 22 to April 29, 1903, 39 days with only 0.02 inch.
September 3 to November 1, 1904, 60 days with only 0.06 inch.
October 17 to November 16, 1906, 31 days with only 0.07 inch.
September 28 to November 1, 1908, 35 days with only 0.04 inch.
August 27 to October 17, 1912, 52 days with only 0.34 inch.

SOUTHWESTERN LOUISIANA.

ABBEVILLE, VERMILION PARISH.

April 22 to May 21, 1899, 30 days.
March 29 to April 28, 1903, 31 days.
May 21 to June 18, 1906, 29 days.

CADES, ST. MARTIN PARISH.

January 3 to February 8, 1911, 37 days.
October 19 to December 1, 1912, 44 days with only 0.44 inch.

CAMERON, CAMERON PARISH.

January 27 to February 25, 1893, 30 days.
April 20 to June 5, 1894, 46 days.
July 26 to August 19, 1895, 25 days.
April 14 to May 27, 1896, 44 days only 0.31 inch.
September 28 to October 22, 1896, 25 days.
February 11 to March 13, 1897, 31 days.
March 29 to April 27, 1897, 30 days with only 0.13 inch.
December 30, 1901, to January 24, 1902, 26 days.
March 29 to April 29, 1903, 32 days.
May 13 to June 8, 1903, 27 days.
September 1 to October 14, 1903, 44 days.
October 30 to December 3, 1903, 34 days with only 0.02 inch.
May 7 to June 9, 1904, 34 days with only 0.13 inch.
April 14 to June 2, 1906, 50 days.
October 20 to November 19, 1906, 31 days.
June 1 to July 6, 1907, 36 days only 0.03 inch.
April 6 to May 18, 1910, 43 days.
October 7 to December 3, 1910, 58 days with only 0.35 inch.
December 24, 1910, to February 19, 1911, 58 days with only 0.31 inch.
February 21 to March 17, 1911, 25 days.
May 13 to June 20, 1911, 39 days.
March 14 to April 8, 1913, 26 days.

GRAND COTEAU, ST. LANDRY PARISH.

September 13 to October 28, 1894, 46 days with only 0.39 inch.
April 23 to May 22, 1898, 30 days.
September 8 to October 9, 1899, 32 days with only 0.03 inch.
April 19 to May 30, 1901, 42 days with only 0.11 inch.
March 28 to April 28, 1903, 32 days.
January 2 to February 8, 1911, 38 days with only 0.25 inch.

JENNINGS, CALCASIEU PARISH.

September 13 to October 9, 1897, 27 days.
April 23 to June 2, 1898, 41 days.
October 12 to November 18, 1899, 38 days.
April 19 to June 2, 1901, 45 days with only 0.35 inch.
December 29, 1901, to January 23, 1902, 26 days.
March 28 to April 23, 1903, 27 days.
September 27 to October 25, 1904, 29 days.
May 25 to June 24, 1906, 31 days.
October 17 to November 16, 1906, 31 days.
February 25 to March 20, 1908, 25 days.

LAFAYETTE, LAFAYETTE PARISH.

September 16 to October 27, 1894, 42 days with only 0.13 inch.
April 23 to May 22, 1899, 30 days.
September 10 to October 10, 1899, 31 days.
March 29 to April 29, 1903, 32 days with only 0.03 inch.
May 21 to June 17, 1906, 28 days.
October 20 to November 17, 1906, 29 days with only 0.04 inch.

LAKE CHARLES, CALCASIEU PARISH.

August 26 to September 30, 1893, 36 days.
October 7 to November 3, 1893, 27 days.
January 4 to 31, 1895, 28 days.
December 4 to 30, 1896, 27 days.
September 16 to October 10, 1897, 25 days.
April 30 to May 31, 1908, 32 days with only 0.17 inch.
April 22 to June 10, 1899, 50 days.
October 19 to November 19, 1899, 32 days.
May 7 to June 3, 1901, 28 days.
December 30, 1901, to January 23, 1902, 25 days.
May 16 to July 3, 1902, 49 days with only 0.28 inch.
March 29 to April 28, 1903, 31 days.
May 15 to June 8, 1903, 25 days.
September 30 to November 3, 1905, 35 days with only 0.08 inch.
May 25 to June 25, 1906, 32 days.
June 2 to July 2, 1907, 31 days.
April 26 to May 21, 1908, 27 days.
September 20 to November 1, 1908, 43 days.
January 4 to February 18, 1911, 46 days with only 0.20 inch.
March 14 to April 9, 1913, 27 days.

LAKESIDE, CAMERON PARISH.

December 30, 1901, to January 23, 1902, 25 days.
March 28 to April 25, 1903, 29 days.
May 8 to June 8, 1903, 32 days.
February 21 to March 21, 1904, 30 days.
August 10 to September 5, 1904, 27 days.
October 12 to December 2, 1904, 52 days.
December 14, 1904, to January 10, 1905, 28 days.
February 20 to March 17, 1905, 26 days.
May 15 to June 18, 1905, 35 days.
September 21 to October 23, 1905, 33 days.
April 14 to May 31, 1906, 48 days with only 0.23 inch.
October 16 to November 16, 1906, 32 days.
January 27 to February 23, 1907, 28 days.
May 30 to July 7, 1907, 39 days with only 0.26 inch.
February 9 to March 21, 1908, 42 days.
April 6 to May 7, 1910, 32 days.
October 12 to November 14, 1910, 34 days.
December 30, 1912, to January 23, 1913, 25 days.

MELVILLE, ST. LANDRY PARISH.

October 1 to 25, 1893, 25 days.
September 14 to October 27, 1894, 44 days.
April 22 to June 6, 1899, 46 days.
September 9 to October 10, 1897, 32 days.
April 19 to May 18, 1901, 30 days.
October 17 to November 14, 1906, 29 days.
September 29 to November 30, 1908, 63 days with only 0.68 inch.
March 1 to April 2, 1910, 33 days with only 0.20 inch.
January 4 to February 7, 1911, 35 days.

NEW IBERIA, IBERIA PARISH.

October 6 to November 17, 1893, 43 days with only 0.10 inch.
October 4 to 28, 1894, 25 days.
July 30 to September 1, 1896, 34 days.
April 20 to May 30, 1898, 42 days.
April 22 to June 4, 1899, 44 days.
September 6 to October 10, 1899, 35 days.
October 13 to November 17, 1901, 36 days with only 0.20 inch.
December 30, 1901, to January 26, 1902, 28 days.
March 28 to April 29, 1903, 33 days.
October 16 to November 24, 1903, 40 days with only 0.25 inch.
September 26 to November 1, 1904, 37 days.
March 15 to April 16, 1907, 33 days.
February 20 to March 17, 1911, 26 days.
August 31 to September 25, 1912, 26 days.
October 19 to November 12, 1912, 25 days.

OPELOUSAS, ST. LANDRY PARISH.

September 14 to October 28, 1894, 45 days with only 0.07 inch.
April 24 to May 23, 1898, 30 days.
April 23 to June 10, 1899, 49 days with only 0.25 inch.
April 20 to May 31, 1901, 42 days.
March 29 to April 29, 1903, 32 days.
October 20 to November 17, 1906, 29 days.
March 1 to April 1, 1910, 32 days.
January 3 to February 3, 1911, 39 days with only 0.12 inch.
February 21 to March 18, 1911, 26 days.

RAYNE, ACADIA PARISH.

April 24 to May 21, 1898, 28 days.
April 23 to May 22, 1899, 30 days.
October 12 to November 13, 1901, 33 days.

April 14 to May 10, 1902, 27 days.
September 8 to November 1, 1904, 55 days with only 0.15 inch.
May 24 to June 17, 1905, 25 days.
April 15 to June 25, 1906, 32 days with only 0.75 inch in four light showers.
October 20 to November 14, 1906, 26 days.
October 20 to November 25, 1912, 37 days.

SUGARTOWN, CALCASIEU PARISH.

August 17 to October 1, 1893, 46 days with only 0.33 inch.
November 4 to December 3, 1894, 30 days.
April 14 to May 12, 1896, 29 days.
May 26 to August 8, 1896, 44 days with only 0.41 inch.
August 25 to September 24, 1896, 31 days.
September 15 to October 10, 1897, 26 days.
April 22 to June 11, 1899, 51 days with only 0.14 inch.
October 11 to November 18, 1899, 39 days.
December 11, 1899, to January 4, 1900, 25 days.
September 29 to October 20, 1900, 42 days.
September 16 to October 10, 1901, 25 days.
October 12 to December 7, 1901, 57 days with only 0.47 inch.
December 30, 1901, to January 27, 1902, 29 days.
June 1 to July 3, 1902, 33 days.
March 28 to April 28, 1903, 32 days.
September 23 to November 1, 1904, 40 days.
October 19 to November 17, 1906, 30 days.
March 2 to 29, 1907, 28 days with only 0.10 inch.
June 1 to July 1, 1907, 31 days with only 0.30 inch.
September 28 to November 1, 1908, 35 days.
January 1 to February 8, 1909, 39 days with only 0.24 inch.
March 13 to April 6, 1909, 25 days.
August 27 to September 20, 1909, 25 days.
April 16 to May 18, 1910, 33 days.
August 13 to September 13, 1910, 32 days.
October 6 to November 4, 1910, 30 days.
November 18 to December 14, 1910, 27 days.
February 20 to March 17, 1911, 26 days.
September 16 to October 30, 1912, 45 days.
November 1 to 30, 1912, 30 days with only 0.30 inch.
March 14 to April 8, 1913, 26 days.

SOUTHEASTERN LOUISIANA.

AMITE, TANGIPAHOA PARISH.

September 19 to October 28, 1894, 40 days.
April 23 to June 5, 1899, 44 days with only 0.05 inch.
October 21 to November 19, 1899, 30 days.
March 29 to April 25, 1903, 28 days.
May 8 to June 1, 1906, 25 days.
March 1 to April 4, 1910, 35 days with only 0.10 inch.
January 24 to March 18, 1911, 54 days with only 0.12 inch.

BATON ROUGE, EAST BATON ROUGE PARISH.

October 7 to November 4, 1893, 29 days with 0.07 inch.
October 4 to 28, 1894, 25 days.
April 23 to May 31, 1898, 39 days with only 0.04 inch.
October 26 to November 24, 1900, 30 days.
April 3 to 29, 1903, 27 days.
October 18 to November 14, 1906, 27 days.
October 11 to November 8, 1909, 29 days.
January 3 to February 8, 1911, 37 days with only 0.04 inch.
February 21 to March 18, 1911, 26 days with only 0.01 inch.

BURNSIDE, ASCENSION PARISH.

March 30 to April 29, 1903, 31 days.
October 10 to November 19, 1904, 41 days with only 0.03 inch.
October 17 to November 13, 1906, 28 days.
January 3 to February 8, 1911, 37 days, with only 0.05 inch.
February 19 to March 17, 1911, 27 days.

CLINTON, EAST FELICIANA PARISH.

September 14 to October 28, 1894, 45 days.
April 22 to June 5, 1899, 45 days with only 0.20 inch.
September 25 to November 2, 1905, 39 days, with only 0.02 inch.
February 21 to March 18, 1911, 26 days.

COVINGTON, ST. TAMMANY PARISH.

September 18 to October 28, 1894, 41 days.
April 1 to 28, 1896, 28 days with only 0.20 inch.
May 4 to June 2, 1898, 30 days.
April 23 to June 6, 1899, 45 days with only 0.07 inch.
January 1 to 26, 1902, 26 days.
March 29 to May 4, 1903, 37 days with only 0.17 inch.
October 7 to 31, 1906, 25 days.
January 4 to February 7, 1911, 35 days with only 0.02 inch.
February 21 to March 18, 1911, 26 days.

DONALDSONVILLE, ASCENSION PARISH.

March 21 to April 13, 1893, 25 days.
October 7 to November 3, 1893, 28 days.
October 4 to 28, 1894, 25 days.
April 23 to June 5, 1899, 44 days with only 0.05 inch.
September 9 to October 10, 1899, 32 days.
October 20 to November 18, 1899, 30 days.
March 31 to April 29, 1903, 30 days.
May 12 to June 8, 1903, 28 days with only 0.25 inch.
November 2 to 30, 1903, 29 days.
May 24 to June 25, 1906, 33 days with only 0.10 inch.
January 4 to February 8, 1911, 36 days.
May 5 to June 18, 1911, 45 days with only 0.13 inch.

FRANKLIN, ST. MARY PARISH.

October 4 to 28, 1894, 25 days.
April 23 to June 9, 1899, 48 days with only 0.02 inch.
March 29 to April 28, 1903, 31 days.
October 17 to November 16, 1903, 31 days.
March 12 to May 7, 1910, 57 days with only 0.42 inch.

HAMMOND, TANGIPAHOA PARISH.

September 15 to October 20, 1896, 36 days.
December 3 to 30, 1896, 28 days.
April 22 to June 9, 1899, 49 days with only 0.35 inch.
October 13 to November 19, 1899, 38 days with only 0.02 inch.
March 29 to April 29, 1903, 32 days with only 0.02 inch.
March 11 to May 7, 1910, 58 days with only 0.15 inch.
January 3 to February 8, 1911, 37 days.
February 20 to March 18, 1911, 27 days.

HOUMA, TERREBONNE PARISH.

December 14, 1893, to January 22, 1894, 40 days.
September 18 to October 29, 1894, 42 days.
November 15 to December 9, 1894, 25 days.
September 25 to October 29, 1895, 35 days.
April 29 to June 21, 1897, 54 days with only 0.35 inch.
April 24 to May 22, 1899, 29 days.
April 19 to May 19, 1901, 31 days.
April 8 to May 6, 1902, 29 days.
January 10 to February 8, 1911, 30 days.
February 20 to March 18, 1911, 27 days.

LAWRENCE, PLAQUEMINES PARISH.

August 11 to September 5, 1893, 26 days.
September 18 to October 29, 1894, 43 days.
November 4 to 28, 1896, 25 days.
April 15 to May 9, 1897, 25 days.
April 20 to June 3, 1898, 45 days with only 0.15 inch.
April 22 to May 18, 1899, 27 days.
April 19 to May 18, 1901, 30 days.
December 31, 1901, to January 27, 1902, 28 days.
April 15 to May 21, 1906, 37 days with only 0.17 inch.
October 7 to November 14, 1906, 39 days.
March 19 to April 17, 1907, 30 days.
September 29 to October 27, 1908, 29 days.
January 11 to February 8, 1911, 29 days.
February 21 to March 22, 1911, 30 days.

MORGAN CITY, ST. MARY PARISH.

May 24 to June 18, 1906, 26 days.
October 17 to November 13, 1906, 28 days.
March 16 to April 19, 1907, 35 days.
January 11 to February 8, 1911, 29 days.
May 22 to June 19, 1911, 29 days.

NEW ORLEANS, ORLEANS PARISH.

October 5 to November 8, 1871, 35 days.
April 26 to May 30, 1874, 35 days with only 0.03 inch.
September 27 to November 7, 1874, 42 days.
September 21 to October 18, 1876, 28 days.
September 22 to October 16, 1883, 25 days.

October 13 to November 8, 1886, 27 days.
September 25 to October 21, 1888, 27 days with only 0.02 inch.
November 21 to December 29, 1889, 40 days with only 0.02 inch.
October 5 to November 8, 1891, 35 days.
January 24 to March 5, 1892, 42 days with only 0.04 inch.
September 15 to October 27, 1894, 43 days.
April 22 to June 4, 1899, 44 days with only 0.14 inch.
April 19 to May 19, 1901, 31 days.
March 30 to April 29, 1903, 31 days.
October 19 to November 13, 1906, 26 days.
March 11 to April 4, 1910, 25 days.
January 11 to February 7, 1911, 28 days.

PEARL RIVER, ST. TAMMANY PARISH.

October 6 to November 7, 1893, 33 days.
September 17 to October 27, 1894, 41 days.
November 3 to 31, 1894, 29 days.
September 17 to October 26, 1896, 40 days.
October 7 to November 14, 1906, 39 days.
January 4 to February 4, 1911, 32 days.

RESERVE, ST. JOHN BAPTIST PARISH.

March 29 to April 29, 1903, 32 days.
October 16 to November 30, 1903, 47 days with only 0.12 inch.
November 1 to December 1, 1904, 31 days.
October 17 to November 13, 1906, 28 days.
September 28 to December 1, 1908, 65 days with only 0.20 inch.
January 16 to February 9, 1909, 25 days.
October 11 to December 2, 1909, 53 days.
March 12 to May 8, 1910, 58 days with only 0.21 inch.
January 3 to February 8, 1911, 37 days.
February 21 to March 18, 1911, 26 days.
May 24 to June 19, 1911, 27 days.

ST. FRANCISVILLE, WEST FELICIANA PARISH.

March 28 to April 29, 1903, 33 days.
May 8 to June 14, 1903, 38 days with only 0.05 inch.
September 1 to October 15, 1903, 45 days with only 0.09 inch.
September 29 to November 21, 1904, 54 days with only 0.01 inch.
July 31 to September 7, 1906, 39 days with only 0.25 inch.
October 18 to November 14, 1906, 28 days.
March 1 to 29, 1907, 29 days.
May 31 to June 25, 1907, 26 days.
June 27 to July 19, 1907, 23 days.
October 7 to November 1, 1907, 26 days.
October 11 to November 12, 1909, 33 days.
February 24 to March 24, 1909, 29 days.
March 12 to April 14, 1910, 34 days.
January 3 to February 20, 1911, 49 days.
February 22 to March 22, 1911, 29 days.
April 29 to June 17, 1911, 50 days.
September 11 to October 15, 1911, 35 days.

SCHRIEVER, TERREBONNE PARISH.

April 26 to May 22, 1895, 27 days.
April 20 to June 2, 1901, 44 days with only 0.09 inch.
January 1 to 28, 1902, 28 days.
March 31 to April 29, 1903, 30 days.
October 18 to December 1, 1908, 45 days with only 0.07 inch.
May 24 to June 17, 1906, 25 days.
March 3 to 30, 1907, 28 days.
October 29 to November 24, 1908, 27 days.

SOUTHERN UNIVERSITY FARM, JEFFERSON PARISH.

April 2 to 26, 1895, 25 days.
December 2 to 30, 1896, 29 days.
March 2 to 28, 1898, 27 days.
April 20 to May 31, 1898, 42 days.
August 27 to October 3, 1899, 38 days with only 0.03 inch.
April 19 to May 18, 1901, 30 days.
October 18 to November 16, 1903, 30 days.
October 18 to November 13, 1906, 27 days.
March 12 to April 15, 1910, 35 days with only 0.03 inch.
January 10 to February 6, 1911, 28 days.
February 20 to March 18, 1910, 27 days.
May 23 to June 18, 1911, 27 days.

TABLE 1.—*Climatological data for July, 1913. District No. 7, Lower Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Colorado.																				
Buena Vista	Chaffee	7,955	13	60.0	+ 0.1	84	5†	35	28	42	1.94	+ 0.39	0.62	0	9	20	3	8	w.	C. A. Short.
Calhan	El Paso	6,700	6	67.2[a]	.....	94	13	42	31	38	1.82	.....	0.48	0	10	23[a]	5[a]	2[a]	se.	H. B. Rice.
Canon City	Fremont	5,343	25	72.8	− 0.5	100	7	50	26†	43	1.60	− 0.21	0.42	0	8	25	3	3	n.	U. S. Weather Bureau.
Colorado Springs	El Paso	6,098	33	66.2	− 1.5	91	7	45	31	39	2.14	− 0.71	0.72	0	9	14	8	9	se.	Ray E. Miller.
Cripple Creek	Teller	9,396	12	.....	.....	.....	.....	.....	.....	.....	4.02	+ 0.53	2.12	0	9	.....	.....	.....	.....	F. G. Willis.
Cuchara Camps	Huerfano	8,200	4	.....	.....	.....	.....	.....	.....	.....	2.96	.....	1.42	0	4	27	1	3	sw.	George A. Mayes.
Eads	Kiowa	4,209	6	84.7	.....	105	13	63	31	32	0.80	.....	0.80	0	1	25	4	2	se.	Mrs. Mattie A. Kerr.
Fairview	Custer	9,500	4	.....	.....	.....	.....	.....	.....	.....	2.30	.....	1.00	0	6	21	10	0	e.	Elizabeth L. Grey.
Fremont Exp. Station	El Paso	8,850	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Garfield	Chaffee	9,510	3	.....	.....	.....	.....	.....	.....	.....	2.63	.....	0.63	0	10	19	8	4	w.	Lloyd N. Felton.
Hamps	Elbert	5,400	20	68.8	.....	96	7	42	29†	43	2.27	− 0.24	1.50	0	4	18	10	3	s.	W. Hamp.
Hermit Lake	Custer	10,000	3	.....	.....	.....	.....	.....	.....	.....	2.84	.....	0.78	0	9	19	6	6	sw.	John E. Graham.
Hoehne (near)	Las Animas	5,700	21	73.4	+ 2.7	100	4	47	28	41[a]	1.48	− 0.81	0.97	0	6	25	4	2	sw.	S. W. DeBusk.
Holly	Prowers	3,380	18	78.0	− 0.1	105	7	51	28	44	2.67	− 0.17	2.10	0	3	29	0	2	s.	Holly Sugar Co.
La Junta	Otero	4,052	.....	.....	.....	.....	.....	.....	.....	.....	3.36	.....	1.73	0	6	23	7	1	e.	S. M. Miller.
Lake Moraine	El Paso	10,265	19	55.1	+ 1.6	78	4	34	27	30	4.15	− 0.19	2.10	0	12	7	19	5	sw.	Clyde C. McReynolds.
Lamar	Prowers	3,592	23	80.4	+ 2.7	109	13	56	27	49	2.00	− 0.93	1.72	0	3	22	6	3	s.	J. T. Lawless.
Las Animas	Bent	3,899	45	75.9	− 1.2	103	13	53	26†	42	2.44	+ 0.42	1.23	0	6	14	16	1	.....	American Beet Sugar Co.
La Veta Pass	Costilla	9,000	3	.....	.....	.....	.....	.....	.....	.....	1.41	.....	0.43	0	6	9	16	6	w.	Clara M. Wright.
Leadville	Lake	10,248	17	54.2	− 0.8	78	5	30	28	38	3.09	+ 1.66	0.94	0	15	13	8	10	n.	U. S. Weather Bureau.
Limon (near)	Elbert	5,360	6	69.0	.....	98	7	41	31	46	3.26	.....	1.78	0	6	25	2	4	s.	F. L. Palmer.
Madrid	Las Animas	6,361	3	.....	.....	.....	.....	.....	.....	.....	1.60	.....	0.83	0	10	.....	.....	.....	.....	Thomas Sawers.
Marshall Pass	Saguache	10,846	10	.....	.....	.....	.....	.....	.....	.....	1.75	− 0.31	0.20	0	12	10	5	16	.....	W. L. Williams.
Maxey	Baca	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. H. Alberti.
Monument	El Paso	7,200	2	63.0	.....	90	13	37	31	45[c]	1.67	.....	0.81	0	9	20	9	2	nw.	U. S. Forest Service.
North Lake	Las Animas	8,700	21	.....	.....	.....	.....	.....	.....	.....	2.55	− 0.77	0.60	0	10	21	7	3	nw.	James W. Ingmire.
Pueblo	Pueblo	4,734	25	74.7	+ 0.5	101	13	51	28	44	3.12	+ 1.15	1.28	0	9	17	10	4	nw.	U. S. Weather Bureau.
Rocky Ford (near)	Otero	4,177	24	74.8	+ 0.3	102	13	51	27†	44	2.82	+ 0.18	1.49	0	5	21	10	0	e.	P. K. Blinn.
St. Elmo	Chaffee	9,500	4	.....	.....	.....	.....	.....	.....	.....	1.22	.....	0.26	0	11	14	9	8	sw.	Daniel Clark.
Salida	....do	7,035	14	64.2	− 0.8	91	5	36	28	49	1.75	+ 0.06	0.44	0	10	20	7	4	nw.	M. D. L. Buell.
Stonewall	Las Animas	8,000	7	.....	.....	.....	.....	.....	.....	.....	1.54	.....	0.63	0	8	11	5	12	e.	G. A. Storz.
Trinidad	....do	5,994	17	71.6	+ 0.9	99	4	46	28	37	1.36	− 1.06	0.82	0	12	5	20	6	sw.	Walter Dearden.
Two Buttes	Baca	4,100	2	77.8	.....	105	13	54	28	39	1.72	.....	1.10	0	2	23	8	0	sw.	N. G. Jones.
Two Buttes Reservoir	....do	4,250	.....	.....	.....	.....	.....	.....	.....	.....	2.26	.....	2.02	0	5	16	14	1	s.	Walter J. Krohne.
Victor	Teller	10,100	9	57.0	.....	79	5†	39	12†	33	4.02	.....	1.32	0	8	16	9	6	w.	Fred Jones.
Vilas	Baca	3,935	22	.....	.....	.....	.....	.....	.....	.....	1.60	− 0.35	1.60	0	1	10	13	8	sw.	Miss Esther Caldwell.
Westcliffe	Custer	7,864	19	58.6	− 3.0	90	6	25	28	55	1.34	− 1.22	0.42	0	6	12	9	10	sw.	U. S. Forest Service.
Winfield	Chaffee	9,765	3	.....	.....	.....	.....	.....	.....	.....	2.02	.....	0.35	0	18	4[a]	21[a]	5[a]	w.	John G. Payne.
Woodman Sanatorium	El Paso	.....	.....	67.8	.....	93	7†	41	28	46	2.42	.....	1.55	0	8	18	10	3	se.	Woodman Sanatorium.
Wortman	Lake	11,250	12	.....	.....	.....	.....	.....	.....	.....	2.20	− 1.19	0.40	0	12	0	23	8	nw.	Mrs. Lillie Wortman.
Yoder	El Paso	.....	2	.....	.....	.....	.....	.....	.....	.....	2.69	.....	1.12	0	6	24	1	6	sw.	J. E. Bingham.
New Mexico.																				
Abbott	Mora	5,771	4	.....	.....	.....	.....	.....	.....	.....	1.13	.....	0.28	0	3	19	3	9	e.	Agent E. P. & S. W. R. R.
Albert	Union	4,700	23	77.9	+ 0.8	102	13	56	24	38	0.73	− 1.98	0.73	0	1	22	9	0	w.	Antonio Chavez.
Aurora	Colfax	8,849	4	.....	.....	.....	.....	.....	.....	.....	3.33	.....	1.15	0	16	1	25	5	sw.	Miss J. Lucero.
Bell Ranch	San Miguel	4,500	14	78.3	.....	102	14	54	24	38	1.41	− 1.48	0.68	0	5	19	9	3	sw.	C. M. O'Donel.
Black Lake	Colfax	8,348	4	.....	.....	.....	.....	.....	.....	.....	1.64	.....	0.50	0	11	5	25	1	se.	Ralph T. Martinez.
Cabeza	San Miguel	5,406	4	.....	.....	.....	.....	.....	.....	.....	0.55	.....	0.55	0	1	30	1	0	sw.	Agent E. P. & S. W. R. R.
Campana	....do	4,493	4	81.0	.....	106	13†	58	21†	38	0.56	.....	0.46	0	3	18	13	0	sw.	Do.
Chacon	Mora	9,000	4	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.62	0	5	5	26	0	w.	Alfredo Lucero.
Cimarron (near)	Colfax	6,385	10	67.6	.....	92	4	44	28	43	1.22	− 1.31	0.80	0	5	12	15	4	se.	Capt. William French.
Clayton	Union	5,178	8	74.8	.....	102	13	51	26	41	1.20	.....	0.57	0	5	15	16	0	sw.	Dr. N. E. Charleton.
Clovis	Curry	4,129	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John H. Barry.
Cuervo	Guadalupe	4,849	4	79.1	.....	100	3†	56	21†	35	0.15	.....	0.15	0	1	14	7	10	sw.	Agent E. P. & S. W. R. R.
Dawson	Colfax	6,396	4	71.0	.....	98	4†	44	28	48	1.51	.....	0.87	0	6	17	10	4	s.	Do.
Elizabethtown	....do	8,465	8	57.4	.....	86	13	28	28	55	2.34	.....	0.60	0	10	14	13	4	nw.	Miss M. Carrington.
Folsom	Union	6,399	13	70.6	+ 2.0	97	13	46	24	38	2.62	− 0.10	1.73	0	6	15	13	3	sw.	David Rope.
Fort Union	Mora	6,835	53	64.3	− 2.7	88	11	38	29	43	0.80	− 3.02	0.25	0	5	25	5	1	.....	M. C. Needham.
Hayden	Union	4,444	3	76.6	.....	100	13†	50	21	37	0.45	.....	0.40	0	2	22	9	0	se.	J. A. Bauer.
Hoosier Ranch	Mora	.....	2	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.74	0	4	22	9	0	sw.	W. H. Guthman.
Johnson Park	Colfax	6,722	4	67.6	.....	92	13	48	24†	40	1.32	.....	0.67	0	10	18	13	0	sw.	A. J. Meloche, jr.
Johnsons Ranch	Mora	5,784	1	.....	.....	.....	.....	.....	.....	.....	2.53	.....	1.40	0	4	8	23	0	.....	J. W. Johnson.
Kappus	Quay	4,010	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Louis O'Brien.
Lake Alice	Colfax	7,160	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jesse Rickman.
Logan	Quay	3,851	7	81.6	.....	108	13	58	24	42	0.10	.....	0.10	0	1	28	3	0	sw.	John B. Reneau.
Lykins (near)	Roosevelt	5,000	3	.....	.....	.....	.....	.....	.....	.....	0.82	.....	0.62	0	2	24	7	0	se.	J. G. Buchanan.
Maxwell (near)	Colfax	5,894	6	.....	.....	.....	.....	.....	.....	.....	0.89	.....	0.48	0	4	.....	.....	.....	.....	Dan N. Jackson.
Melrose	Curry	4,400	5	.....	.....	.....	.....	.....	.....	.....	0.78	.....	0.78	0	1	.....	.....	.....	.....	Dr. B. M. Porter.
Miami Ranch	Colfax	6,000	5	68.3	.....	95	13	43	26†	48	1.70	.....	0.65	0	7	10	20	1	w.	Farmers Development Co.
Mills (near)	Mora	5,985	2	.....	.....	.....	.....	.....	.....	.....	2.21	.....	1.19	0	4	20	5	6	sw.	J. E. LaRue.
Montoya	Quay	4,335	4	.....	.....	.....	.....	.....	.....	.....	0.15	.....	0.15	0	1	22	9	0	sw.	Agent E. P. & S. W. R. R.
Nara Visa	....do	4,225	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Willard Belknap.
Palo Verde	Mora	5,880	2	.....	.....	.....	.....	.....	.....	.....	2.70	.....	1.52	0	3	18	13	0	se.	G. R. Abernathy.
Pasamonte	Union	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. J. Heringa.
Pleasant View	Mora	.....	2	.....	.....	.....	.....	.....	.....	.....	2.94	.....	1.14	0	4	21	10	0	sw.	R. W. Boulware.
Portales	Roosevelt	4,004	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Portales Irrigation Co.
Raton	Colfax	6,660	15	68.0	− 1.2	94	8	46	24†	37	2.02	− 0.37	1.21	0	9	25	2	4	nw.	S. A. Wiseman.
Rociada	San Miguel	8,200	10	62.7	+ 0.8	90	13	29	1	50	2.93	− 0.88	1.25	0	4	17	10	4	w.	John P. Condon.
Rosebud	Union	4,500	2	.....	.....	.....	.....	.....	.....	.....	0.76	.....	0.33	0	3	.....	.....	.....	.....	H. A. Nachtrieb.
Roy	Mora	5,884	4	74.2	.....	98	5†	52	24	38	2.52	.....	1.17	0	4	12	14	5	sw.	Agent E. P. & S. W. R. R.
Roy (near)	....do	5,880	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Braun Brothers.
St. Vrain (near)	Curry	4,300	.....	.....	.....	.....	.....	.....	.....	.....	1.26	.....	0.86	0	3	.....	.....	.....	.....	S. A. Dow.
San Jon	Quay	4,200	6	79.8	.....	104	14	57	21	38	1.79	.....	1.57	0	2	19	11	1	sw.	Jesse T. White.
Solano	Mora	3,622	4	75.0	.....	94	16†	51	20	37	2.02	.....	0.67	0	5	22	4	5	sw.	F. M. Hughes.
Springer	Colfax	5,857	21	71.6	+ 0.3	98	4	43	25	48	0.75	− 2.04	0.45	0	3	28	3	0	w.	Agent A. T. & S. F. R. R.
Taylor	....do	5,661	4	70.8	.....	98	7†	44	25†	48	0.88	.....	0.50	0	2	17	0	14	w.	Agent E. P. & S. W. R. R.
Texico (near)	Roosevelt	4,038	.....	.....	.....	.....	.....	.....	.....	.....	1.35	.....	1.21	0	4	.....	.....	.....	.....	A. L. King.
Trementina	San Miguel	5,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Alice Blake.
Tucumcari (near)	Quay	4,194	9	80.4	.....	105	13	54	21	38	0.56	.....	0.38	0	2	28	1	2	sw.	John F. Seaman.
Tucumcari	....do	4,194	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Valley	Union	5,000	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss M. L. Payne.
Vance (near)	....do	.....	2	.....	.....	.....	.....	.....	.....	.....	0.30	.....	0.27	0	3	28	2	1	sw.	C. E. Anderson.
Vermejo Park	Colfax	7,600	10	63.8	+ 1.1	91	12	37	29	48	1.57	− 2.41	0.70	0	5	15	10	6	.....	H. W. Adams.
Wagon Mound (near)	Mora	6,300	4	67.8	.....	92	13†	40	29	47	1.30	.....	0.57	0	8	17	11	3	se.	Guy D. Barnes.

TABLE 1.—*Climatological data for July, 1913. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas.																					
Amarillo	Potter	3,676	21	78.7	+ 2.6	101	14	58	21	34	1.80	− 1.37	0.83	0	6	26	5	0	s.		U. S. Weather Bureau.
Archer City	Archer		2								0.67		0.45	0	2	30	1	0	s.		Charles H. Thuman.
Arthur City	Lamar	590	21								5.18	+ 0.91	2.25	0	4	19	5	7			C. A. Lowrey.
Bonham	Fannin	566	9	82.9		105	9	68	2†	36	6.82		2.30	0	5	18	9	4	s.		H. M. Norman.
Canadian	Hemphill	2,339	6	81.9		103	14†	58	21	34	0.97		0.83	0	5	27	2	2	s.		R. M. Hibbard.
Childress	Childress	1,869	20																		George Baker.
Chillicothe	Hardeman	1,406	5								1.28		0.87	0	3						C. W. Underwood.
Clarendon	Donley	2,719	8	79.6		100	11	59	21	34	2.16		1.00	0	6	7	23	1	sw.		Whitfield Carhart.
Clarksville	Red River	442	13	85.0	+ 1.9	101	9†	70	16†	27	0.00	− 5.62	0.00	0	0	18[d]	4[d]	5[d]			J. W. O'Neill.
Claude	Armstrong	3,397	10								T.	− 3.32	T.	0	0						Ft. W. & D. C. Ry.
Dalhart	Dallam	3,998	8	78.1		105	13	54	21	38	0.84		0.58	0	4	30	0	1	se.		W. D. Griggs.
Denison	Grayson		13								10.31	+ 5.91	3.50	0	5	16	0	15	s.		J. L. Wilson.
Finley	Bowie		3								1.70		0.70	0	4	22	1	8	s.		Robert L. Smith.
Henrietta	Clay	915	21	87.6	+ 3.9	107	11	67	22	35	0.60	− 1.60	0.55	0	2	26	4	1	s.		C. K. Brown.
Jefferson	Marion										2.40		1.10	0	3	24	3	4	s.		J. C. Kistenmacher.
Memphis	Hall	2,067	8																		Ft. W. & D. C. Ry.
Miami	Roberts	2,743	10	81.4		102	15	56	21	37	2.30	− 1.37	1.90	0	4	26	5	0	s.		J. E. Kinney.
Ochiltree	Ochiltree		5																		S. J. Allen.
Paducah	Cottle										0.87		0.40	0	3	14	16	1	sw.		C. M. Grayum.
Panhandle	Carson	3,450	4								1.75		1.50	0	2	21	6	4			J. Sid O'Keefe.
Paris	Lamar	592	24	82.8	+ 0.4	102	19	69	6†	33	4.44	+ 1.20	1.85	0	6	17	7	7	s.		Robert A. Miller.
Plemons	Hutchinson		6	80.8		106	13	51	21	37	1.83		0.97	0	4	23	4	4	s.		C. S. Solomon.
Quanah	Hardeman	1,563	11	84.2	+ 1.0	107	11†	60	3	41	0.81	− 1.13	0.45	0	3	23	3	5	s.		William H. Crawford.
Ringo Crossing	Hopkins		3								4.86		1.47	0	5	20	2	9	s.		H. J. Palmer.
Romero	Hartley	4,056	3	78.5		105	13†	49	28	44	0.10		0.10	0	1	16	15	0	se.		R. S. Chamberlain.
Sherman	Grayson	745	20	84.4	+ 2.1	99	8	67	21	24	7.82	+ 3.12	2.70	0	4	19	6	6	s.		R. A. Gibbs.
Stratford	Sherman	3,699	1	79.8		105	13	55	21	39	1.60		0.86	0	3	12	17	2	s.		J. W. Elliott.
Tulia	Swisher	3,501	15	78.5	+ 1.8	106	11	55	21	39	3.85	− 0.32	2.81	0	4	16	15	0	se.		Lou Mulhall.
Wellington	Collingsworth		1								0.42		0.22	0	2						J. D. Camp.
Wichita Falls	Wichita	958	21																		J. C. Mytinger.
Winfield	Titus		3								2.71		1.18	0	3	11	19	1	sw.		J. B. Newberry.
Kansas.																					
Alden	Rice	1,684	3	81.6		105	8†	55	21	35	1.51		0.78	0	7	23	7	1	s.		Geo. Klady.
Anthony	Harper	1,329	16	84.2		109	8†	59	22	41	2.17	− 1.38	0.58	0	7	15	13	3	sw.		R. H. Beebe.
Ashland	Clark	1,951	25	81.6	+ 1.8	107	16	57	22	40	1.00	− 2.87	0.47	0	7	18	13	0	s.		C. W. Carson.
Burlington	Coffey	1,010	20	82.0	+ 3.8	106	17	55	21	41	1.08	− 2.85	0.94	0	3	7	24	0	s.		O. E. Sanford.
Chanute	Neosho	940	9	83.9		104	18	60	21†	35	2.89		1.49	0	2	12	14	5	s.		C. W. Brown.
Cimarron	Gray	2,700	1	81.2		108	13	60	21†	38	0.36		0.25	0	3	19[g]	3[g]	2[g]	s.		C. C. Isely.
Coffeyville	Montgomery	747	3																		A. F. Briggs.
Coldwater	Comanche	2,090	16	82.2	+ 3.4	104	8†	58	21	35	0.91	− 2.15	0.34	0	4	26	5	0	s.		J. L. Stanley.
Columbus	Cherokee	898	23	83.2	+ 5.1	107	18	57	21	39	0.76	− 4.36	0.30	0	7	18	11	2	sw.		O. E. Skinner.
Coolidge	Hamilton	3,348	16	78.8	+ 2.0	114	14	54	1†	46	1.70	− 1.25	1.10	0	2	19	9	3	se.		W. R. Padley.
Cottonwood Falls	Chase	1,234	9	82.7		107	8	52	21	42	1.66		0.75	0	4	24	4	3	s.		E. B. Greene.
Council Grove	Morris	1,234	4	82.7		106	16	54	21	41	0.84		0.50	0	5	20	9	2	sw.		J. P. Blackledge.
Cunningham	Kingman	1,680	29	82.6	+ 4.0	105	8†	64	12	35	0.50	− 3.36	0.25	0	2	28	2	1	s.		W. H. Morton.
Dodge City	Ford	2,513	39	80.7	+ 3.0	105	8	61	21	34	0.70	− 2.68	0.26	0	8	19	11	1	s.		U. S. Weather Bureau.
El Dorado	Butler	1,291	11	82.8		105	8	56	21	35	1.04		0.55	0	6	23	6	2	s.		W. Y. Miller.
Ellinwood	Barton	1,790	38	83.5	+ 5.4	110	8	56	21	37	0.65	− 3.23	0.17	0	7	10	21	0	sw.		Martin Musil.
Emporia	Lyon	1,138	32	81.2	+ 3.3	106	16	56	21	39	3.55	− 0.28	2.20	0	7	23	4	4	s.		W. H. Boyles.
Eureka	Greenwood	1,079	17	82.9		107	15†	60	10†	43	1.97	− 2.62	0.72	0	4	20	7	4	sw.		Mrs. T. C. Peffer.
Fall River	do	925	17	83.4	+ 4.9	107	11†	54	21†	43	2.92	− 2.49	1.60	0	6	25	6	0	s.		J. McDaniel.
Fargo	Seward		3								2.38		0.82	0	6	11	20	0	s.		N. B. Swink.
Fredonia	Wilson	975	10	82.4		106	18	55	21	38	2.49		1.78	0	10	21	8	2	s.		B. W. Holmes.
Garden City	Finney	2,836	24	80.4	+ 3.0	110	13	58	20†	46	1.14	− 2.19	0.91	0	3	17	13	1	s.		B. F. Stocks.
Greensburg	Kiowa	2,235	6																		C. C. Raymond.
Grenola	Elk	1,116	25	81.2	+ 3.0	104	11	56	22	42	1.42	− 2.19	0.87	0	5	16	13	2	sw.		W. H. Lawyer.
Howard	do	1,112	6	82.4		105	11	56	22	41	2.79		1.36	0	7	21	8	3	s.		J. W. Eby.
Hugoton	Stevens		9	81.4		110	13	58	1†	38	1.69		0.52	0	6	17	12	2	s.		E. R. Kimzey.
Hutchinson	Reno	1,535	23	83.7	+ 5.4	108	8†	62	10†	36	1.30	− 3.85	0.95	0	3	25	5	1	sw.		Sheridan Ploughe.
Independence	Montgomery	800	39	82.9	+ 2.2	106	18	54	22	44	1.48	− 2.76	0.91	0	4	15	10	6	s.		F. L. Kenoyer.
Iola	Allen	984	7	81.6	+ 3.5	102	18	57	21	37	2.30	− 1.62	0.52	0	8	18	12	1	s.		U. S. Weather Bureau.
Irene	Hamilton	3,440	3	80.6		110	13	56	1†	44	1.12		1.02	0	3	6	21	4	s.		N. M. Herbig.
Jetmore	Hodgeman	2,268	12																		James Aikin.
Kingman	Kingman	1,504	5	83.4		108	8	55	21	40	0.90		0.33	0	5	21	8	2	sw.		B. B. Anawalt.
La Crosse	Rush	2,061	11	83.3	+ 6.3	109	8†	57	19	38	0.98	− 2.10	0.70	0	4	27	4	0	se.		Rodney Torrey.
Lakin	Kearney	2,993	23	79.8	+ 2.6	112	13	56	1†	45	1.12	− 1.23	0.80	0	2	24	7	0	s.		C. H. Longstreth.
Larned	Pawnee	2,090	28	83.2		109	8	59	21	37	0.51	− 2.92	0.18	0	5	26	3	2	s.		H. H. Wolcott.
Lebo	Coffey	1,138	27	82.6	+ 4.7	106	8†	57	21	39	1.58	− 2.69	1.06	0	7	22	7	2	sw.		J. J. Bowman.
Le Roy	do	990	4								3.59		2.76	0	4	18	3	10	s.		F. W. Schmitt.
Liberal	Seward	2,843	6	82.4		108	13†	57	26	34	1.72		0.71	0	6	21	3	7	sw.		Dr. R. T. Nichols.
Macksville	Stafford	2,032	24	82.0	+ 3.4	108	8	54	21	41	0.42	− 3.07	0.19	0	7	18	9	4	sw.		Mrs. Nelia Poling.
McPherson	McPherson	1,495	24	84.1	+ 5.6	111	8	49	21	45	1.25	− 2.58	0.51	0	5	23	4	4	sw.		Ed. F. Haberlein.
Madison	Greenwood	1,074	12	80.6	+ 3.1	105	6	50	21	45	1.26	− 3.95	0.65	0	3	8	23	0	se.		C. A. David.
Marion	Marion	1,310	20	84.4	+ 5.7	109	8	55	21	38	0.69	− 2.95	0.22	0	8	15	16	0	s.		Jerry Forney.
Medicine Lodge	Barber	1,259	20	81.6	+ 1.7	109	8	55	21	41	1.90	− 1.19	0.96	0	5	19	11	1	sw.		S. P. Garrison.
Minneola	Clark	2,558	1								1.44		0.70	0	3	20	11	0	sw.		A. P. Reece.
Mount Hope	Sedgwick	1,410	16								1.07	− 2.47	0.28	0	8	19	11	1	s.		H. N. Renfrew.
Neosho Rapids	Lyon	1,092	8								2.61		1.25	0	7	25	2	4	sw.		W. H. McMullin.
Ness City	Ness	2,260	20								0.56	− 2.84	0.19	0	3						J. K. Barnd.
Newton	Harvey	1,454	16	84.5	+ 5.9	108	8	59	21	40	0.92	− 2.63	0.65	0	4	16	15	0	s.		H. A. Brush.
Norwich	Kingman	1,496	17	83.8	+ 5.0	106	8	57	21	40	1.74	− 1.54	0.67	0	4	25	4	2	s.		N. I. Farris.
Oswego	Labette	899	19	82.0	+ 3.1	102	8†	58	21	33	1.30	− 3.44	0.48	0	5	21	9	1	sw.		Jas. M. Currigan.
Pittsburg	Crawford	934									1.27		0.85	0	4	24	3	4	sw.		A. L. Scott.
Plains	Meade	2,766	3	79.6		108	13	56	27	39	2.53		0.77	0	6	22	9	0			E. J. Henning.
Pratt	Pratt	1,950	18	83.2	+ 4.2	108	8†	57	31	45	0.92	− 2.55	0.52	0	4	13	17	1	s.		T. J. Arnold.
Richfield	Morton		2	80.8	+ 2.5	110	13	56	1	38	1.54	− 2.00	0.78	0	5						M. J. Allen.
Rome	Sumner	1,218	27	83.0	+ 3.9	107	8	53	22	46	2.12	− 1.46	0.90	0	6	23	5	3	s.		D. M. Adams.
Sedan	Chautauqua	834	28	83.4	+ 4.2	109	18	55	22	44	2.27	− 1.26	1.32	0	8	15	12	4	s.		A. Y. Buckles.
Toronto	Woodson	1,040	16	82.6	+ 4.3	107	16†	54	22	46	2.92	− 1.84	1.78	0	5	29	1	1	s.		M. A. Webb.
Ulysses	Grant	3,050	22			110	13	60	1†	45	0.45	− 2.30	0.45	0	1	27[a]	0[a]	3[a]	s.		T. W. Marshall.
Walnut	Crawford	940	11	82.4	+ 4.3	105	18	58	22	40	2.08	− 2.41	1.86	0	2	22[b]	7[b]	0[b]	sw.		R. C. Harlan.
Wellington	Sumner	1,225	17	83.7	+ 4.6	108	8	54	21	43	4.20	+ 0.55	1.39	0	9	18	12	1	s.		E. O. G. Kelly.
Wichita	Sedgwick	1,377	26	82.4	+ 3.4	102	8	64	22	30	1.28	− 2.34	0.75	0	9	20	10	1	s.		U. S. Weather Bureau.
Winfield	Cowley	1,124	19	82.8	+ 3.6	105	8	54	21	40	2.56	− 1.46	0.95	0	6	26	2	3	s.		M. B. Light.
Yates Center	Woodson	1,068	34	81.4	+ 3.9	105	18	56	22	42	0.97	− 3.34	0.48	0	3	17[a]	13[a]	0[a]	s.		J. W. Tipton.

TABLE 1.—*Climatological data for July, 1913. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oklahoma.																				
Ada	Pontotoc	1,001	5	83.7	.....	104	8†	63	22	34	1.34	.....	0.76	0	6	20	5	6	s.	H. P. Sugg.
Altus	Jackson	1,410	....	84.4	.....	107	11	64	20†	35	1.36	.....	0.61	0	4	19	7	5	s.	U. S. Weather Bureau.
Alva	Woods	1,350	8	83.0	.....	105	16	60	21	36	2.30	.....	2.10	0	2	14	17	0	s.	S. A. Stech.
Apache	Caddo	1,255	3	83.4	.....	106	31	55	22	42	2.44	.....	1.76	0	3	28	2	1	sw.	G. D. Teeter.
Arapaho	Custer	1,575	19	83.2	+ 3.1	106	23	50	22	48	1.77	− 1.91	1.57	0	3	23	7	1	.....	J. C. Brower.
Ardmore	Carter	872	11	85.4	+ 3.2	107	19	62	22	36	3.69	+ 0.63	1.66	0	4	25	3	3	s.	H. T. Nisbett.
Bartlesville	Washington	687	5	86.0	.....	108	18	64	22	35	2.32	.....	1.11	0	5	18	7	6	sw.	Dr. A. P. Owens.
Beaver	Beaver	2,500	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. Frazer.
Cache	Comanche	1,350	7	79.8	.....	102	11†	51	22	45	2.45	.....	2.05	0	2	26	4	1	sw.	Mrs. Frank Rush.
Calvin	Hughes	713	8	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.10	0	5	18	0	13	s.	Thomas Purcell.
Chandler	Lincoln	865	11	85.2	+ 3.6	108	31	59	22	41	1.79	− 1.02	1.00	0	5	15	0	16	s.	Chas. L. Kern.
Chattanooga	Comanche	1,150	7	81.6	.....	103	23	59	31	42	1.98	.....	0.92	0	4	26	4	1	s.	Squire Humble.
Chickasha	Grady	1,091	11	84.0	+ 1.3	106	31	53	22	45	1.37	− 0.82	1.25	0	3	19	7	5	s.	Anna W. O'Neil.
Cleveland	Pawnee	800	11	86.4	+ 6.1	108	18	58	22	43	1.23	− 0.88	0.49	0	5	23	6	2	sw.	Chas. C. Breed.
Cloud Chief	Washita	1,400	11	83.9	+ 2.3	107	23	59	22	36	3.79	+ 1.56	3.18	0	2	20	10	1	s.	J. P. Stutzman.
Crawford	Roger Mills	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. W. Blackburn.
Durant	Bryan	643	11	82.8	+ 1.8	102	19	64	22	34	7.11	+ 2.77	3.04	0	5	21	6	4	s.	Nelson Houk.
Eldorado	Jackson	1,456	6	82.4	.....	108	11†	59	7†	45	0.26	.....	0.16	0	2	24	6	1	sw.	T. W. Lanham.
El Reno	Canadian	1,400	21	84.0	+ 3.8	104	....	60	....	37[a]	7.44	+ 4.37	6.50	0	2	25	4	2	s.	Rose E. Walker.
Enid	Garfield	1,269	11	83.0	+ 1.8	106	11	57	22	40	1.22	− 2.03	0.55	0	5	18	13	0	s.	Uri B. Worcester.
Erick	Beckham	2,058	8	83.8	.....	107	....	56	....	45[a]	0.24	.....	0.17	0	2	25	6	0	s.	A. W. Hanes.
Eufaula	McIntosh	566	....	83.0	.....	105	....	60	....	35[a]	2.85	.....	1.21	0	7	12	14	5	s.	R. Uhl Brown.
Fairland	Ottawa	839	13	83.3	+ 4.7	104	6†	56	21	40	2.87	− 0.81	1.50	0	7	16	12	3	s.	C. W. Prier.
Fort Gibson	Muskogee	556	8	.....	.....	.....	.....	.....	.....	.....	2.59	.....	1.30	0	7	20	5	6	e.	John T. Welsh.
Frederick	Tillman	1,293	6	85.6	.....	108	31	64	22	38	1.27	.....	0.85	0	4	27	4	0	s.	B. B. Bradley.
Geary	Blaine	1,546	1	82.6	.....	102	11†	60	21	34	4.52	.....	4.32	0	2	26	3	2	sw.	O. P. Ruth.
Goodwell	Texas	3,300	2	81.6	.....	108	13	55	21	38	1.10	.....	0.78	0	6	19	9	3	s.	S. W. Black.
Guthrie	Logan	1,000	20	83.6	+ 2.0	105	31	54	22	42	3.25	+ 0.26	3.25	0	1	24	7	0	s.	S. E. Snyder.
Guymon	Texas	3,133	3	.....	.....	.....	.....	.....	.....	.....	1.38	.....	0.81	0	3	24	7	0	se.	A. L. Mordt.
Hartshorne	Pittsburg	700	14	86.2	+ 4.6	105	9	68	4†	30	0.04	− 3.86	0.02	0	2	25	5	1	s.	Frank Webber.
Healdton	Carter	900	19	84.1	+ 2.8	107	31	54	22	46	1.50	− 2.32	1.22	0	2	20	10	1	se.	C. H. Heald.
Helena	Alfalfa	1,396	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. G. McCall.
Hennessey	Kingfisher	1,166	18	85.6[a]	+ 4.5	107	11	50	22	50	1.70	− 2.00	1.40	0	2	19	12	0	s.	Mrs. M. C. Parks.
Hobart	Kiowa	1,396	10	83.6	.....	106	11†	59	22	39	2.75	.....	1.30	0	4	25	5	1	s.	J. M. Pate.
Holdenville	Hughes	900	12	84.8	+ 4.8	106	8	63	22	35	1.22	− 2.08	0.91	0	3	24	7	0	s.	Eula Rutherford.
Hooker	Texas	3,038	7	80.9	.....	108	12†	57	21	39	1.89	.....	1.00	0	4	18	1	12	s.	H. N. Kelly.
Hugo	Choctaw	.....	.....	82.3	.....	100	19	67	15†	31	6.97	.....	2.63	0	6	22	8	1	n.	G. C. Montgomery.
Hurley	Cimarron	4,200	5	80.8	.....	108	13	52	20	43	1.19	.....	0.81	0	3	12	19	0	sw.	Dr. C. W. Meyers.
Idabel	McCurtain	474	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson	Grant	1,062	19	84.2	+ 3.5	108	8	54	21	42	0.72	− 2.68	0.51	0	4	22	9	0	s.	T. E. Beck.
Kenton	Cimarron	4,000	12	80.0	+ 3.9	108	13	53	24	38	2.34	+ 0.11	1.33	0	5	16	12	3	se.	Ralph H. Guy.
Kingfisher	Kingfisher	1,046	16	84.4	+ 3.2	104	11	53	22	45	2.32	− 0.98	2.13	0	4	20	11	0	s.	J. C. Cross.
Lawton	Comanche	1,111	....	84.6	.....	105	23	58	22	40	2.11	.....	1.42	0	6	21	6	4	se.	Frank M. Head.
Lawtonka Lake	do	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.97	.....	2.42	0	4	.....	.....	.....	.....	W. F. Stuart.
McAlester	Pittsburg	698	16	85.5	.....	105	8†	68	27†	31	2.11	− 1.78	0.98	0	4	21	3	7	s.	Wm. Noble.
Mangum	Greer	1,585	20	84.2	+ 2.2	107	11	62	22†	44	4.00	+ 1.47	2.68	0	4	20	5	6	se.	F. D. Dodson.
Marlow	Stephens	1,292	12	84.8	+ 4.1	106	20†	63	22	36	0.83	− 1.47	0.33	0	3	21	4	6	se.	Wm. B. Anthony.
May	Harper	.....	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. C. Gray.
Meeker	Lincoln	1,030	14	87.2	+ 6.6	111	30†	55	22	48	1.00	− 1.75	1.00	0	1	27	1	3	s.	Dr. J. H. Baugh.
Muskogee (1)	Muskogee	.....	....	84.8	.....	105	8†	65	21	35	1.42	.....	1.00	0	4	17	9	5	se.	U. S. Weather Bureau.
Muskogee (2)	do	614	14	87.6	+ 8.4	107	9	70	2†	33	1.89	− 2.04	1.00	0	4	13	11	7	s.	J. Harry Randall.
Mutual	Woodward	.....	5	83.2	.....	108	18	56	21	41	.....	.....	.....	0	....	28	2	1	s.	Thos. Martin.
Neola	Caddo	1,500	7	83.3	.....	105	31	59	22	37	4.00	.....	3.42	0	3	18	13	0	s.	R. N. Schooling.
Newkirk	Kay	1,149	15	85.0	+ 3.9	104	11†	61	22	38	1.52	− 1.90	0.71	0	4	25	5	1	s.	P. H. Albright & Co.
Norman	Cleveland	1,171	18	84.2	+ 3.6	105	....	54	....	44[a]	1.00	− 2.20	1.00	0	1	8	21	2	s.	S. E. Boyd.
North Muskogee	Muskogee	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.56	.....	2.00	0	6	14	5	12	s.	J. E. Walker.
Oakwood	Dewey	1,854	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. E. E. Lawson.
Okeene	Blaine	1,194	8	83.9	.....	108	11	59	22	39	1.64	.....	0.81	0	5	24	7	0	sw.	Dr. L. H. Murdoch.
Okemah	Okfuskee	.....	1	85.6	.....	106	8†	60	23	37	0.78	.....	0.30	0	5	25	0	6	s.	S. F. Smith.
Oklahoma	Oklahoma	1,247	23	81.7	+ 1.9	103	31	60	22	34	5.06	+ 1.41	5.06	0	1	15	9	7	s.	U. S. Weather Bureau.
Okmulgee	Okmulgee	752	8	85.4	.....	105	9	69	12†	32	2.05	.....	0.88	0	4	17	8	6	s.	J. L. Maynard.
Pauls Valley	Garvin	880	12	84.8	+ 4.5	106	31	56	22	44	1.46	− 2.21	0.94	0	6	26	1	4	s.	A. M. Foss.
Pawhuska	Osage	918	12	84.2	+ 4.0	105	18	54	22	43	0.62	− 3.74	0.36	0	5	22	9	0	sw.	R. C. Block.
Perry	Noble	920	14	83.0	+ 2.5	104	8	57	21	37	2.77	+ 0.24	1.75	0	5	18	13	0	s.	S. E. Laird.
Rankin	Roger Mills	2,200	9	79.6	.....	105	11	57	21	40	1.59	.....	1.30	0	5	24	7	0	sw.	Roy Kagay.
Ravia	Johnston	796	10	83.2	.....	107	19	60	22	41	5.15	.....	1.60	0	4	23	3	5	s.	R. G. Guptill.
Sac and Fox Agency	Lincoln	900	19	85.3	+ 5.3	106	31	60	22	38	1.79	− 1.54	0.80	0	5	11	19	1	n.	Tos. P. Myers.
Shawnee	Pottawattomie	1,041	11	83.6	+ 3.2	105	31	58	22	40	1.82	− 0.94	1.45	0	3	5	24	2	s.	Mrs. Kate Chatman.
Snyder	Kiowa	1,356	6	84.1	.....	104	10	62	22	35	1.53	.....	0.90	0	2	25	5	1	s.	Dr. W. C. Woodard.
Stillwater	Payne	880	20	82.3	+ 2.4	102	11	56	22	38	3.49	+ 0.33	2.40	0	5	21	6	4	s.	Will P. Watson.
Tahlequah	Cherokee	790	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. P. Hardy.
Tulsa	Tulsa	700	24	83.8	.....	105	18	61	22	36	3.12	− 0.14	1.34	0	6	21	9	1	s.	Dr. H. M. Hutchinson.
Vinita	Craig	698	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Insane Hospital.
Wagoner	Wagoner	588	16	83.2	+ 2.2	105	9	60	21	32	3.70	− 0.98	1.80	0	4	5	22	4	s.	Moro Hatfield.
Waukomis	Garfield	1,258	16	83.6	+ 2.3	106	11	56	22	43	1.28	− 2.55	1.05	0	3	22	9	0	sw.	R. C. Shades.
Waurika	Jefferson	988	2	85.3	.....	106	11	62	22	35	2.71	.....	1.60	0	4	25	6	0	s.	B. A. Swindler.
Weatherford	Custer	1,639	11	82.7	+ 2.2	106	31	58	22	44	7.86	+ 5.62	7.00	0	7	18	6	7	s.	Eugene Forbes.
Webbers Falls	Muskogee	479	14	85.4	+ 5.0	108	8†	66	16	41	3.40	− 0.66	1.60	0	5	8	23	0	w.	B. D. Boulineau.
Whiteagle	Kay	945	9	84.2	.....	106	18	58	22	40	1.05	.....	0.65	0	3	20	11	0	sw.	John F. DeJarnette.
Woodward	Woodward	1,900	10	81.9	.....	104	15	56	....	38[a]	0.99	.....	0.65	0	3	11	20	0	s.	Fred A. Baird.
Wyandotte	Ottawa	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.02	.....	1.02	0	6	15	5	11	calm.	Henry Hicks.
Missouri.																				
Belle	Maries	.....	22	79.8	+4.9	102	24	55	22	37	1.61	−2.68	0.81	0	2	13[g]	9[g]	2[g]	s.	A. J. Wofford.
Birch Tree	Shannon	1,200	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	V. H. Kirkendall.
Cape Girardeau	Cape Girardeau	346	4	.....	.....	.....	.....	.....	.....	.....	6.45	.....	2.10	0	6	19	7	5	s.	D. L. Albert.
Cardwell	Dunklin	.....	2	79.8	.....	100	18	53	22	37	5.93	.....	2.85	0	10	17[e]	9[e]	2[e]	s.	E. M. Perry.
Caruthersville	Pemiscot	.....	23	81.4	+1.9	102	18	59	22	35	2.71	−0.99	0.92	0	7	22	6	3	e	H. E. Averill.
Cassville	Barry	.....	3	77.0	.....	97	9	49	22	37	7.68	.....	2.67	0	8	18	11	2	s.	Mrs. Zuma Bloomer.
Dean	McDonald	.....	15	78.6	+1.0	99	6†	52	21	40	4.15	−0.14	0.95	0	8	24[d]	1[d]	2[d]	sw.	H. E. Dean.
Doniphan	Ripley	440	10	80.2	+2.8	102	18	55	22	36	3.96	−2.45	1.23	0	9	20	5	6	s.	W. W. Martin.
Fruit City	Reynolds	1,150	1	79.7	.....	98	29	58	21	28	4.88	.....	1.31	0	9	19	3	9	w.	R. C. Walton.
Gano	Dent	.....	10	78.6	+2.2	100	18	54	21	33	4.70	+0.05	1.14	0	10	15	14	2	s.	A. C. Leech.
Goodland	Iron	900	9	76.2	.....	98	29	50	22	37	5.27	.....	2.80	0	7	15	13	3	s.	F. M. Adams.
Hollister	Taney	850	4	78.0	.....	94	6	56	22	30	5.15	.....	1.95	0	6	23	0	8	sw.	W. P. Chapmann.
Ironton	Iron	925	36	78.0	+2.4	100	18	47	22	41	3.73	−0.84	1.25	0	8	7	18	6	s.	W. H. Delano.
Jackson	Cape Girardeau	458	23	80.0	+3.5	102	18	54	22	37	5.53	+1.76	2.09	0	9	13	13	5	s.	L. M. Bean.
Joplin	Jasper	979	32	82.0	+3.9	99	16	60	21	31	0.70	−4.09	0.50	0	2	17	0	14	s.	Joplin High School.
Koshkonong	Oregon	911	14	80.7	+3.3	100	18	61	22	30	3.77	−0.80	0.68	0	10	13	15	3	s.	J. W. Hitt.
Lamar	Barton	964	33	82.5	+4.4	104	16	57	20	38	4.96	+0.50	3.36	0	7	20	7	4	sw.	E. H. Adams.

TABLE 1.—*Climatological data for July, 1913. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Missouri—Continued.																				
Marble Hill	Bollinger	420	20	81.4	+4.6	100	18	56	22†	40	3.12	−1.78	0.83	0	8	20	10	1	s.	A. F. Hendricks.
Mountain Grove	Wright	1,490	15	79.0	+3.5	98	29	61	21†	28	3.40	−1.37	1.45	0	7	19	8	4	s.	Mo. Fruit Exp. Sta.
Mount Vernon	Lawrence	1,480	37	79.6	+1.9	99	7†	52	24	40	5.49	+0.10	1.80	0	6	23	6	2	sw	J. R. White & Son.
Neosho	Newton	1,023	31	80.2	+2.8	101	6	51	21	41	1.95	−2.48	1.06	0	5	27	2	2	sw.	W. O. Buck.
New Madrid	New Madrid	285	20	.....	.....	.....	.....	.....	.....	.....	2.73	−1.70	0.90	0	7	19	3	9	se.	Miss Josie Smith.
Oakfield	Franklin	793	22	80.4	+2.9	104	29	59	21	32	2.67	−2.15	1.10	0	9	3	25	3	sw.	E. E. Steines.
Rolla	Phelps	1,139	33	79.5	+2.7	102	18	56	23	35	3.91	−0.23	0.63	0	14	16	6	9	s	Prof. P. J. Wilkins.
Springfield	Greene	1,350	26	79.2	+2.8	96	18	63	21	26	3.84	−0.95	1.75	0	9	17	12	2	s.	U. S. Weather Bureau.
Kentucky.																				
Blandville	Ballard	445	32	79.1	+1.2	95	1†	61	22	26	6.67	+2.78	3.05	0	6	12	13	6	sw.	E. W. Horr.
Tennessee.																				
Arlington	Shelby	.....	31	80.6	+1.2	98	1†	59	22	31	7.39	+3.65	2.40	0	10	17	6	8	s.	A. Thomas B. Etheridge.
Bolivar	Hardeman	450	30	79.8	+1.3	96	6	59	22	31	4.41	+0.58	1.18	0	9	26	0	5	s.	Miss Mary A. Smith.
Brownsville	Haywood	361	31	81.7	+2.4	98	1†	61	22	32	4.09	+0.59	1.84	0	9	22	2	7	sw.	Miss Hattie N. Moses.
Covington	Tipton	311	30	79.9	+0.5	98	1	62	23	28	5.61	+2.29	2.10	0	10	23	2	6	s.	James S. Ruffin.
Dyersburg	Dyer	310	30	81.1	+1.2	97	1†	61	22	29	3.91	+0.26	1.50	0	9	24	0	7	se.	Miss Martha A. Sinclair.
Jackson	Madison	450	23	81.2[d]	+2.1	102	29	58	23	35[d]	5.17	+0.36	2.15	0	5	14	17	0	sw.	Shelby A. Robert.
Kenton	Obion	325	11	78.8	+0.3	98	29	55	22	35	2.16	−2.64	0.94	0	4	12	13	6	s.	George S. Martin.
Memphis	Shelby	409	42	81.0	+0.3	95	6	69	12	21	5.91	+2.40	2.09	0	9	17	4	10	sw.	U. S. Weather Bureau.
Milan	Gibson	440	31	79.6	+0.4	96	6†	60	22	31	3.56	−0.21	1.76	0	11	12	5	14	s.	Orlando F. Cantwell.
Trenton	do	345	33	78.8	+1.1	97	18	57	22	34	6.44	+3.06	2.00	0	8	18	9	4	sw.	F. L. Dennison.
Union City	Obion	360	18	81.4	+2.1	104	29	56	22	38	3.45	−0.94	1.30	0	8	9	22	0	sw.	J. R. Oliver.
Arkansas.																				
Alicia	Lawrence	.....	9	80.8	.....	97	18	58	22	34	3.90	.....	2.10	0	7	22	9	0	s.	McCullough and Guelck.
Amity	Clark	250	21	82.8[e]	+2.7	103	7	64	23	34[e]	4.76	+0.84	2.50	0	5	.....	.....	.....	sw.	J. W. Campbell.
Arkansas City	Desha	145	30	.....	.....	.....	.....	.....	.....	.....	2.82	−1.06	1.52	0	5	.....	.....	.....	.....	W. C. Blundell.
Batesville	Independence	271	14	.....	.....	.....	.....	.....	.....	.....	2.44	−0.95	0.64	0	10	.....	.....	.....	.....	Lelia I. Teter.
Bee Branch	Van Buren	.....	21	81.6	+2.0	104	6	61	22	33	6.60	+2.89	3.25	0	7	.....	.....	.....	.....	J. E. Scanlan.
Bentonville	Benton	1,303	8	79.4	+0.9	100	9	60	22	30	4.64	+0.33	2.58	0	9	13	14	4	s.	U. S. Weather Bureau.
Bergman	Boone	1,324	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John T. Maxey.
Black Rock	Lawrence	259	10	.....	.....	.....	.....	.....	.....	.....	3.86	.....	0.85	0	12	.....	.....	.....	.....	S. J. Howe.
Brinkley	Monroe	226	29	82.2	+2.4	102	18†	58	22	36	4.69	+0.72	1.23	0	10	17	9	5	s.	H. L. D. Whitson.
Calico Rock	Izard	361	9	.....	.....	.....	.....	.....	.....	.....	2.60	.....	1.10	0	4	.....	.....	.....	.....	J. W. Wray.
Camden	Ouachita	158	28	82.0	+0.9	100	7†	64	23	32	4.55	+0.25	2.15	0	8	.....	.....	.....	.....	R. H. Quarterman.
Center Point	Howard	470	14	82.6	+1.0	103	19	68	22†	33	5.29	+0.11	1.25	0	7	14	9	8	sw.	J. M. Huddleston.
Clarendon	Monroe	171	9	.....	.....	.....	.....	.....	.....	.....	1.65	.....	0.41	0	9	.....	.....	.....	.....	Mrs. B. E. Bishop.
Conway	Faulkner	309	30	82.9	+2.5	102	6	62	22	32	5.15	+1.58	2.23	0	7	19	10	2	s.	G. H. Burr.
Corning	Clay	293	20	.....	.....	.....	.....	.....	.....	.....	6.06	+2.63	3.00	0	12	12	11	8	s.	Jacob Brobst.
Dardanelle	Yell	330	27	82.4	.....	102	18	63	22†	34	3.62	−0.60	1.24	0	10	.....	.....	.....	.....	A. Bernard.
Dodd City	Marion	1,175	32	80.2	+0.2	99	6†	57	20	38	2.20	−2.78	0.70	0	6	17	14	0	sw.	Neal Dodd.
Dumas	Desha	.....	2	.....	.....	.....	.....	.....	.....	.....	4.11	.....	0.98	0	7	18	13	0	.....	Lawrence Waterman.
Dutton	Madison	.....	11	76.1	+1.7	94	6†	55	21	32	7.67	+3.54	2.03	0	8	14	11	6	s.	J. M. Ricketts.
Eldorado	Union	265	9	81.4	.....	98	8	67	21	27	3.90	.....	1.04	0	9	.....	.....	.....	.....	Jeff J. Babb.
England	Lonoke	.....	6	81.8	.....	101	19	60	22	34[d]	2.09	.....	0.95	0	5	.....	.....	.....	.....	J. C. Chenault.
Eureka Springs	Carroll	1,465	12	80.7	+3.6	100	6†	57	21†	37	4.70	+0.26	1.42	0	9	3	26	2	sw.	George W. Nicholds.
Fayetteville	Washington	1,451	25	80.0	+2.6	99	6†	59	12	30	8.26	+3.45	3.88	0	10	4	26	1	sw.	University of Arkansas.
Fordyce	Dallas	.....	3	81.6	.....	99	19	67	23	27	4.83	.....	1.40	0	6	9	12	10	n.	J. B. Atkinson.
Fort Smith	Sebastian	481	31	83.0	+2.0	101	9	66	12	32	3.69	−0.15	0.96	0	10	11	12	8	e.	U. S. Weather Bureau.
Fraziers Turnpike	Pulaski	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. E. Brown.
Fulton	Hempstead	264	26	.....	.....	.....	.....	.....	.....	.....	2.74	−1.01	1.48	0	5	.....	.....	.....	.....	B. C. Logan.
Georgetown	White	200	1	.....	.....	.....	.....	.....	.....	.....	4.80	.....	1.66	0	9	.....	.....	.....	.....	Wm. N. Harris.
Hardy	Sharp	643	15	81.2	+2.7	103	18	58	22	36	4.33	+0.23	1.60	0	8	6	14	11	sw.	C. A. Caywood.
Helena	Phillips	182	41	81.8	+0.4	104	6	66	22	33	3.46	−0.56	1.60	0	8	.....	.....	.....	.....	W. Schwarz.
Hot Springs	Garland	600	22	83.6	+3.2	103	19	68	10	29	4.17	−0.95	2.35	0	7	24	5	2	sw.	Army and Navy Gen. Hosp.
Huttig	Union	85	6	82.2	.....	101	19	66	22	32[a]	3.66	.....	1.80	0	7	.....	.....	.....	.....	C. A. Berry.
Jonesboro	Craighead	345	18	81.7	+0.9	102	29	60	22†	33	4.80	+1.57	1.30	0	8	7	24	0	s.	Benedictine Sisters.
Junction	Union	.....	19	83.2	+2.6	101	19	67	2†	28	2.94	−0.92	1.19	0	4	20	6	5	sw.	J. A. Lowderback.
Lake Farm	Jefferson	195	6	83.0	.....	102	6	60	22	34	3.51	.....	2.02	0	6	.....	.....	.....	.....	G. L. Spellman.
Lewisville	Lafayette	262	10	83.7	.....	101	8†	68	1†	33	2.91	.....	0.80	0	6	.....	.....	.....	.....	F. W. Youmans.
Little Rock	Pulaski	357	34	81.6	+1.0	98	19	67	19	31	3.74	−0.25	1.53	0	11	13	13	5	sw.	U. S. Weather Bureau.
Lutherville	Johnson	775	14	80.7	+1.9	98	6†	61	22	31	3.79	−0.09	1.15	0	10	7	23	1	se.	W. R. Hentschel.
Malvern	Hot Springs	277	32	82.1	+ 0.9	102	19	65	23†	30	5.17	+ 2.19	1.70	0	6	.....	.....	.....	.....	Miss L. C. Smith.
Mammoth Spring	Fulton	512	9	81.2	.....	104	18	56	22	39	5.39	.....	1.42	0	9	10	19	2	.....	F. Wallick.
Marked Tree	Poinsett	229	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chapman & Dewey Lum. Co.
Mena	Polk	1,100	22	80.4	− 0.3	97	28†	66	22	28	2.83	− 2.00	1.52	0	6	6	21	4	sw.	E. W. St. John.
Newport	Jackson	231	30	82.4	+ 1.8	103	29	61	22	34	4.54	+ 1.43	2.00	0	9	.....	.....	.....	.....	Wiley W. McMann.
Pine Bluff	Jefferson	215	30	82.4	0.0	101	19	66	22†	29	5.13	+ 1.59	3.40	0	9	.....	.....	.....	.....	J. H. Hudson.
Pocahontas	Randolph	.....	20	81.4	+ 2.0	102	18	58	22	35[a]	3.83	− 0.68	1.70	0	9	9	18	4	.....	Benedictine Sisters.
Pond	Benton	1,250	16	79.8	+ 3.2	99	6	58	21	31	3.96	− 1.10	1.30	0	6	1	27	3	sw.	A. F. Stevens.
Portland	Ashley	122	5	83.0	.....	103	19	64	22	32	3.19	.....	1.35	0	8	.....	.....	.....	.....	T. A. Corson.
Prescott	Nevada	327	32	82.4	+ 0.5	104	27	63	23	34	5.42	+ 2.54	1.72	0	8	.....	.....	.....	.....	Mrs. G. Cummings.
Rogers	Benton	1,385	22	78.5	+ 1.6	100	9	60	22	29	10.34	+ 5.75	4.00	0	7	16	10	5	s.	Carl A. Starck.
Springbank	Miller	182	6	.....	.....	.....	.....	.....	.....	.....	2.37	.....	1.01	0	7	.....	.....	.....	.....	G. Field.
Stuttgart	Arkansas	495	26	82.9	+ 2.2	103	19	59	22	36	2.02	− 2.72	0.73	0	9	16	11	4	sw.	H. A. Buerkle.
Subiaco	Logan	1,050	16	81.9	+ 2.1	100	9†	65	12†	32	2.91	− 0.92	1.22	0	8	18	5	8	s.	New Subiaco Abbey.
Swain	Newton	2,300	3	76.0	.....	93	6	62	21†	27	8.52	.....	2.41	0	11	16	14	1	s.	George Paxton.
Texarkana	Miller	332	31	83.6	+ 1.5	102	19	67	22	33	2.71	− 0.38	0.73	0	7	.....	.....	.....	.....	D. E. Moore.
Warren	Bradley	304	18	82.6	+ 0.7	102	19	65	22	30	4.07	+ 0.26	1.50	0	7	.....	.....	.....	.....	W. J. Savage.
Whitecliffs	Little River	206	9	.....	.....	.....	.....	.....	.....	.....	0.52	.....	0.23	0	4	.....	.....	.....	.....	F. B. Lane.
Wiggs	Garland	.....	20	80.2	− 0.1	101	19	61	23	39	3.77	− 2.09	1.82	0	8	11	18	2	sw.	S. D. Jester.
Wynne	Cross	250	5	82.2	.....	100	6†	60	22	31	11.54	.....	4.60	0	10	.....	.....	.....	.....	John Seals.
Mississippi.																				
Anguilla	Sharkey	107	5	81.7	.....	99	6	61	22	32	3.62	.....	0.90	0	9	11	13	7	sw.	E. W. Cook.
Austin	Tunica	200	17	81.2	+ 0.9	101	6	59	22	25	5.19	+ 1.03	1.90	0	9	22	6	3	s.	H. J. Irvine.
Batesville	Panola	230	26	81.2	+ 1.0	99	6†	61	22	32	2.83	− 1.32	1.35	0	9	24	0	7	s.	J. M. Cox.
Big Creek	Calhoun	.....	2	82.2	.....	102	19	63	22	30	0.69	.....	0.25	0	7	13	12	6	s.	J. P. Havens.
Canton	Madison	228	23	82.2	+ 1.6	99	6	64	22	31	5.70	+ 1.46	2.30	0	12	12	11	8	se.	Dr. G. W. Smith-Vaniz.
Charleston	Tallahatchie	.....	3	81.2	.....	101	19	57	22	36	2.67	.....	0.60	0	9	21	4	6	sw.	W. B. Burke.
Clarksdale	Coahoma	.....	6	82.0	.....	100	6	61	22	31	2.93	.....	0.68	0	11	13	7	11	s.	A. C. Tuttle.
Cleveland	Bolivar	160	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. W. Boone.
Coffeyville	Yalobusha	241	4	.....	.....	.....	.....	.....	.....	.....	2.41	.....	0.50	0	15	9	21	1	s.	C. K. Bailey.
Corinth	Alcorn	470	25	81.2	+ 2.4	102	19	64	8	32	4.70	− 0.26	1.62	0	10	15	4	12	s.	M. A. Candler.
Crenshaw	Panola	187	4	.....	.....	.....	.....	.....	.....	.....	8.11	.....	7.00	0	10	4	3	24	s.	Rodgers Woolard.

TABLE 1.—*Climatological data for July, 1913. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
***Mississippi*—Contd.**																				
Duck Hill	Montgomery	.....	14	81.8	+ 1.8	103	6†	56	22	37	2.48	− 2.34	0.77	0	6	....	....	....	se.	W. H. Eskridge.
Edwards	Hinds	222	26	83.0	+ 0.9	100	19	66	22	32	2.29	− 2.93	0.70	0	11	16	15	0	s.	E. F. Farr.
Fayette	Jefferson	270	12	79.7	− 0.5	95	8	65	8†	30	7.01	+ 1.75	2.72	0	12	8	18	5	sw.	T. L. Darden.
Greenville	Washington	126	26	83.4	+ 1.6	101	6†	66	22	26	4.13	− 0.18	1.64	0	10	18	4	9	sw.	M. G. Harbison.
Greenwood	Leflore	140	13	82.6	+ 1.9	104	19	58	22	39	4.23	− 1.31	1.73	0	10	15	8	8	sw.	J. H. Stephen.
Grenada	Grenada	124	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. F. Hallam.
Hernando	De Soto	391	25	80.9	+ 0.7	98	6	63	22	29	7.49	+ 2.99	4.90	0	10	23	2	6	s.	W. F. Wood.
Hickory Flat	Benton	435	4	.....	.....	.....	.....	.....	.....	.....	4.30	.....	2.25	0	5	.....	.....	.....	.....	H. Powell.
Holly Bluff	Yazoo	.....	5	.....	.....	.....	.....	.....	.....	.....	2.99	.....	1.07	0	10	13	10	8	.....	W. C. Sharbrough.
Holly Springs	Marshall	600	26	79.6	− 0.7	96	6†	64	22	26	5.02	+ 0.71	3.16	0	11	17	5	9	sw.	L. B. Mosby.
Kosciusko	Attala	430	23	81.8	+ 2.1	101	6	63	22	34	3.71	− 1.10	1.58	0	10	18	12	1	sw.	E. L. Lucas.
Malone	Marshall	.....	4	.....	.....	.....	.....	.....	.....	.....	5.85	.....	5.00	0	5	.....	.....	.....	.....	M. J. Wilkins.
Moorhead	Sunflower	117	...	80.9	.....	98	6†	59	22	34	6.46	.....	2.64	0	9	15	13	3	.....	H. S. Gove.
Natchez	Adams	206	25	79.6	− 2.3	95	8†	60	2	31	5.62	+ 0.54	2.08	0	11	17	3	11	sw.	Catherine E. Garrity.
Pontotoc	Pontotoc	475	24	79.2	+ 0.3	96	6	62	21	25	5.00	+ 0.14	1.50	0	5	11	19	1	nw.	Dr. C. W. Bolton.
Port Gibson	Claiborne	116	25	81.0	− 0.1	97	19	64	22	29	3.39	− 1.15	1.02	0	9	9	10	12	e.	H. H. Crisler.
Rosedale	Bolivar	143	5	82.1	.....	100	19	65	22	26	0.99	.....	0.25	0	6	19	4	8	sw.	T. J. Murray.
Shoccoe	Madison	.....	10	81.7	+ 1.1	101	6†	65	22	33	3.65	− 0.69	1.04	0	10	12	8	11	s.	J. C. Pitchford.
Suffolk	Franklin	.....	12	81.3	+ 1.0	99	8	65	9	31	5.70	− 1.43	1.06	0	14	13	10	8	sw.	Prof. Geo. H. Kent.
Swan Lake	Tallahatchie	148	8	.....	.....	.....	.....	.....	.....	.....	1.59	.....	0.55	0	7	18	8	4	.....	Dr. S. D. Robinson.
Tchula	Holmes	130	8	82.4	.....	101	6	60	22	36	1.41	.....	0.48	0	4	7	24	0	w.	Dr. M. P. Winkler.
University	Lafayette	502	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. J. H. Dorroh.
Utica	Hinds	287	9	82.4	.....	100	19	64	22	31[b]	2.90	.....	0.95	0	10	8	14	9	.....	Dr. J. B. Dudley.
Vicksburg	Warren	247	42	81.4	+ 1.0	97	8	69	22	25	1.06	− 3.36	0.42	0	8	4	18	9	sw.	U. S. Weather Bureau.
Water Valley	Yalobusha	300	24	81.8	+ 1.6	102	19	64	22	31	4.40	+ 0.02	1.25	0	13	15	8	8	sw.	Miss Loula Eriksson.
Woodville	Wilkinson	560	20	79.8	− 1.6	95	19†	64	10	27	4.21	− 3.27	1.65	0	11	13	16	2	se.	James E. Lee.
Yazoo City	Yazoo	116	19	82.0	0.0	98	6†	62	22	34	1.50	− 3.06	0.72	0	7	22	3	6	se.	W. H. Courts.
Louisiana.																				
Abbeville	Vermilion	18	25	81.8	+ 0.2	98	19†	69	23	25	11.77	+ 4.19	6.85	0	14	15	10	6	se.	Hon. C. J. Edwards.
Alexandria	Rapides	77	25	81.6	− 0.4	98	8†	69	7	28	4.85	− 1.01	2.00	0	8	13	8	10	s.	Miss Nellie Graham.
Amite	Tangipahoa	130	25	81.1	− 0.2	98	19	68	1†	28	14.40	+ 6.16	4.00	0	15	16	5	9	n.	Miss L. M. Wentz.
Antioch	Claiborne	.....	1	81.9	.....	101	19	63	21	31[a]	5.09	.....	1.35	0	8	22	0	9	s.	W. L. Anglin.
Avoca Island	St. Mary	9	2	.....	.....	.....	.....	.....	.....	.....	14.14	.....	5.50	0	15	15	10	6	.....	J. N. Pharr & Sons.
Baton Rouge	E. Baton Rouge	60	25	80.4	− 1.0	97	19	68	2†	25	6.01	− 0.41	1.15	0	16	13	10	8	se.	Elmo M. Bott.
Burnside	Ascension	20	13	81.0	+ 0.1	99	8	62	12	29[c]	12.01	+ 5.38	3.00	0	13	10	13	8	.....	C. S. McFarland.
Burrwood	Plaquemines	1	25	81.8	− 0.7	92	26†	68	7	20	4.01	− 3.25	1.26	0	8	21	5	5	s.	Graham Myers.
Cades	St. Martin	.....	3	82.6	.....	97	20	68	23	25	5.71	.....	2.57	0	11	18	10	3	s.	C. E. Smedes.
Calhoun	Ouachita	180	25	81.1[b]	− 0.2	97	19	64	29	29[p]	2.14	− 2.33	0.72	0	8	14	11	6	s.	North Louisiana Exp. Sta.
Cameron	Cameron	6	20	78.2	− 3.6	99	20	60	20	39	5.93	− 1.77	1.52	0	13	6	24	1	sw.	Adolph Bruckert.
Carrollton	Orleans	7	2	80.5	.....	99	18	63	23	32	10.15	.....	2.44	0	23	14	10	7	.....	Loyola College.
Cheneyville	Rapides	67	25	82.2	+ 0.6	100	19	69	7†	28	2.54	− 2.82	0.40	0	10	16	4	11	w.	Walter I. Tanner.
Clinclare	W. Baton Rouge	.....	3	81.8	.....	97	8†	68	22	26	8.17	.....	2.05	0	9	4	17	10	se.	Clinclare Central Factory.
Clinton	East Feliciana	113	25	79.7	− 1.1	95	8	68	26	21	10.08	+ 3.05	2.68	0	18	14	7	10	s.	John A. White.
Collinston	Morehouse	65	12	82.6	+ 0.5	99	7†	65	22	30	8.72	+ 3.20	2.53	0	12	9	10	12	s.	J. B. Reily.
Covington	St. Tammany	39	21	81.2	0.0	99	8	68	9	30	6.12	− 1.35	1.84	0	12	18	6	7	s.	Cecile P. Champagne.
Dodson	Winn	.....	4	81.4	.....	100	19	59	14	35	3.23	.....	0.92	0	6	13	13	5	se.	C. C. Carr.
Donaldsonville	Ascension	33	25	81.6	+ 0.4	98	18†	68	24	24	19.35	+13.58	4.00	0	14	19	1	11	s.	J. P. Lucas.
Dutchtown	....do	.....	2	.....	.....	.....	.....	.....	.....	.....	8.99	.....	2.71	0	14	12	8	11	.....	John F. Park.
Farmerville	Union	177	25	80.7	− 0.4	96	19	67	21	27	8.13	+ 3.40	1.78	0	10	14	9	8	s.	Picard & Geismar (Ltd.).
Florence	Vermilion	.....	1	83.8	.....	98	20	70	22	22	13.63	.....	4.20	0	11	5	24	2	se.	W. P. Chandler.
Franklin	St. Mary	10	21	82.0	− 0.1	98	19	69	24	25	14.14	+ 4.70	2.73	0	19	13	7	11	s.	White Lake Land Co.
Franklinton	Washington	.....	3	81.9	.....	99	4†	66	9	33	9.97	.....	1.25	0	19	4	9	18	sw.	Miss J. M. Bonney.
Grand Cane	De Soto	302	19	76.5	− 4.8	98	7†	54	24	39	4.56	+ 0.97	1.08	0	9	21	5	5	s.	Herbert R. Babington.
Grand Coteau	St. Landry	93	25	82.2	+ 0.9	99	20	69	7†	28	5.41	− 1.07	1.73	0	11	11	6	14	n.	G. Foster Provost.
Hammond	Tangipahoa	44	21	81.2	− 0.2	99	19	69	1†	27	5.97	− 0.40	2.15	0	9	15	8	8	se.	St. Charles College.
Houma	Terrebonne	.....	25	83.2	+ 1.7	95	8†	68	22	20	7.90	− 1.33	2.00	0	14	17	4	10	s.	C. C. Carr.
Jena	La Salle	.....	2	82.1[j]	.....	100	19	66	22	28[j]	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. Estus Wilbanks.
Jennings	Calcasieu	30	16	81.6	+ 0.1	99	20	69	24	25	5.66	− 0.17	1.81	0	13	6	21	4	se.	Prof. John M. Foote.
Laark	Morehouse	.....	1	81.2	.....	100	6	61	20	33	3.70	.....	1.55	0	5	22	1	8	.....	J. F. Buch.
Lafayette	Lafayette	36	25	81.2	0.0	96	19†	69	24	24	7.39	+ 0.25	1.37	0	17	15	6	10	e.	P. M. Donley.
Lake Charles	Calcasieu	22	25	81.4	+ 0.1	102	20	64	6†	35	6.35	− 0.29	1.50	0	12	24	1	6	s.	J. J. Davidson.
Lakeside	Cameron	9	12	82.0	0.0	100	20	68	24	24	15.87	+ 8.16	5.30	0	12	18	9	4	w.	George Boudreaux.
La Rose (near)	La Fourche	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss L. J. Nunemacher.
Lawrence	Plaquemines	6	22	83.2	+ 0.5	99	4†	70	1†	28[b]	9.04	+ 1.82	2.00	0	16	14	9	8	s.	Louisiana Delta Farms Co.
Liberty Hill	Bienville	.....	25	84.9	+ 2.3	105	28	68	9	35	1.40	− 3.85	0.75	0	4	21	3	7	s.	Hon. H. C. Warmoth.
Logansport	De Soto	192	9	.....	.....	.....	.....	.....	.....	.....	3.49	.....	2.47	0	6	12	4	15	s.	Dr. E. A. Crawford.
Melville	St. Landry	45	25	80.6	− 1.0	99	8	68	14†	28	3.70	− 2.22	0.83	0	13	16	3	12	e.	Mrs. Bettie M. Dennis.
Minden	Webster	194	25	80.7	− 1.6	100	18	65	21†	32	4.39	+ 0.24	0.96	0	9	17	10	4	e.	Chas. B. McNeill.
Monroe	Ouachita	82	25	82.4	+ 0.2	100	19	68	9	27	4.65	− 0.31	2.02	0	12	9	3	19	w.	Miss Ethel Fort.
Morgan City	St. Mary	14	7	.....	.....	.....	.....	.....	.....	.....	13.64	.....	5.08	0	14	4	9	18	se.	Kathryn Key.
Napoleonville	Assumption	.....	4	82.4	.....	99	8†	71	11†	26	11.85	.....	2.45	0	15	6	0	25	.....	Virgil E. Kinsey.
Newellton	Tensas	.....	6	80.6	.....	95	6†	66	22	23	5.75	.....	2.69	0	10	.....	.....	.....	.....	Leon Godchaux Co. (Ltd.).
New Iberia	Iberia	15	25	81.8	+ 0.4	95	8†	68	23	21	12.40	+ 5.07	6.25	0	12	11	10	10	.....	John D. Fultz.
New Orleans (1)	Orleans	51	42	81.6	+ 0.3	96	19	68	6	26	5.37	− 1.10	1.27	0	18	8	12	11	s.	Mrs. John A. Gebert.
New Orleans (2)	....do	18	25	81.6	− 0.7	96	5†	69	4†	27	9.28	+ 2.56	2.08	0	18	5	5	21	s.	U. S Weather Bureau.
Opelousas	St. Landry	83	21	81.6	0.0	100	19	68	22†	27	6.98	+ 0.77	1.89	0	12	18	3	10	e.	Sugar Experiment Station.
Paradis	St. Charles	.....	2	.....	.....	.....	.....	.....	.....	.....	9.52	.....	2.50	0	16	.....	.....	.....	.....	Andrew Moresi.
Pearl River	St. Tammany	29	7	.....	.....	.....	.....	.....	.....	.....	5.28	.....	1.22	0	17	19	7	5	s.	R. E. Boyce.
Plain Dealing	Bossier	268	21	82.4	+ 0.8	100	9	65	21	32	2.52	− 2.36	1.57	0	6	20	0	11	se.	Geo. F. Bancks.
Rayne	Acadia	44	21	82.8	+ 0.6	101	8	69	7	28	4.33	− 2.65	1.10	0	8	17	2	12	s.	Leon Sanders.
Reserve	St. John Baptist	.....	12	76.2	− 6.1	98	31	59	3	29	7.09	+ 0.80	2.05	0	8	12	12	7	.....	A. P. McNeil.
Richland Plantation	Rapides	.....	1	83.2	.....	100	9†	69	9†	31	3.62	.....	1.04	0	13	20	1	10	se.	Leon Godchaux Co. (Ltd.).
Robeline	Natchitoches	147	17	82.5	+ 1.4	102	20	65	22	35	1.80	− 2.83	0.60	0	4	18	5	8	s.	A. B. Pendleton.
Ruston	Lincoln	312	18	84.4	+ 2.8	101	21	68	20	32	4.54	− 0.65	1.37	0	8	21	4	6	s.	Anna R. McCook.
St. Francisville	West Feliciana	115	10	82.2	.....	98	9†	69	9	29	10.30	.....	1.52	0	18	13	17	1	s.	Andor M. Larson.
Schriever	Terrebonne	17	21	80.6	− 1.2	96	6†	62	5†	34	13.45	+ 4.54	2.70	0	14	25	0	6	w.	G. W. Newman.
Shreveport	Caddo	249	42	83.3	+ 1.2	99	19	70	31	24	0.70	− 3.02	0.36	0	7	14	11	6	s.	William H. Gautreaux.
Simmesport	Avoyelles	42	7	.....	.....	.....	.....	.....	.....	.....	6.05	.....	1.96	0	13	3	8	20	sw.	U. S. Weather Bureau.
Southern Univ. Farm	Jefferson	.....	16	.....	.....	.....	.....	.....	.....	.....	4.09	− 1.76	2.15	0	10	13	7	11	se.	Cassius T. Leigh.
Sugartown	Calcasieu	.....	20	82.2	+ 0.5	97	20	70	31	21	3.30	− 1.77	1.24	0	7	8	23	0	.....	F. L. St. Martin.
Tallulah	Madison	91	6	82.2	.....	100	20	63	9	32	2.77	.....	0.94	0	10	....	....	....	.....	G. W. Richardson.
Walker	Livingston	.....	3	79.4[f]	.....	99	4†	52	18†	44[l]	9.14	.....	2.40	0	14	....	....	....	.....	Neal T. Halt.
																				L. W. Wilkinson.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
[*] [*] Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 7 Low Mississippi Valley.*

Stations.	Watershed.	Day of month.																											Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
Buena Vista	Arkansas					T.	T.			T.					.08	.05	.25	.10	.35	.12	.32	.05	T.	.62									1.94
Calhan	Sig Sandy		.07		.01		T.			.17	.33				T.		.02		.33	.48				.10	.40	.01							1.82
Canon City ‖	Arkansas									.03	.42					T.	.12		.33	.26	.12			.23	.09								1.60
Colorado Springs	Fountain						T.	T.	T.	.72	.28					T.	.01	T.	.21	.24	T.		.08	.08	.31	T.	T.	.21					2.14
Cripple Creek	Oil Creek								.64	.36						.17	.06	T.	1.91	.21	T.	T.	.06	.21	.40								4.02
Cuchara Camps	Cucharas																	.38	1.42	.87	.29												2.96
Eads	Big Sandy												.80							T.													0.80
Fairview	St. Charles									.47								.36	1.00	.21			.12	.14									2.30
Fremont Experiment Station. ‖	Fountain																																
Garfield	Little Ark						.16	T.	T.	.22	T.				T.	.06	.25		.06	.40	.50	.35	.42	.21			T.			T.			2.63
Hamps	Big Sandy										1.50							T.		.54				.02	.21								2.27
Hermit Lake	Grape Creek						.10		.78									.11	.10	.45	.29	.28	.50	.23									2.84
Hoehne (near)	Purgatoire									.01							.17			.13			T.	.97	.08		.12						1.48
Holly	Arkansas																		2.10							.05		.52					2.67
La Junta	do		T.							.26							.04		1.50	.23			1.29					.04					3.36
La Moraine	Fountain					.22			.13	.16	.15						.06	.10	2.10	.88	.02	T.		.14	.12	T.	.10						4.18
Lamar	Arkansas		.40																1.72	.06					.22								2.00
Las Animas	do		.10																1.23					.30	.03			.20					2.44
La Veta Pass	Cucharas															.15	.23		.16	.21			.43					.23					1.41
Leadville	Arkansas						T.	T.	.26	.67	.27			T.	.01	.32	.22	.26	.45	.06	.06	.06	.06	.12	.25	T.	T.	T.		.02			3.09
Limon (near)	Big Sandy										.85							.48	1.00	.78			T.	.07	.08	T.							3.26
Madrid	Purgatoire	.23							.30			.03					.02		.07			.04	.06	.81	.02			.02					1.60
Marshall Pass	Arkansas				.15	.20		.10	.15			.20							.20		.15		.10	.20	.10	.10	.10						1.75
Monument	Fountain								.01	.12						.74	.07	.06		.31			.12	.18	T.	.06						T.	1.67
North Lake	Pugatoire									.10							.53	.07	.23	.30	.18	.60	.21	.22								.11	2.55
Pueblo	Arkansas							T.	.04	.65							.08	.45	.88	.40	T.		.03	.17	.42	T.	T.						3.12
Rocky Ford (near)	do									.17								T.	1.49	.31					.66			.19					2.82
St. Elmo	Chalk Creek						.15				.09					.04	.12	.02		.05	.25	.26	.10	.12		.02							1.22
Salida ‖	Arkansas								.21	.12						.07	.44	.10	.09	.42	.16	.03		.11						T.			1.75
Stonewall	Purgatoire						.10								T.			.10	.27	.08	.05	.27	.04	.63									1.54
Trinidad	do		.09							.08		.06							T.	.05	.04	.01		.82	.08	.01	.02	.05		.05			1.36
Two Buttes	Arkansas																			1.10					T.		.62						1.72
Two Buttes Res'vr	do		.08							.05							T.		2.02						.08	.03							2.26
Victor	Oil Creek								.30	.10	.38					T.	T.	T.	1.32	.50	T.	.52	.51	T.	.39		T.						4.02
Vilas	Cimarron																		1.60														1.60
Westcliffe	Grape Creek								.49	.07									21	.12		.01		.42									1.34
Winfield	Clear Creek						T.	.12	.13	.02	.10			.17		.15	.03	.10	.10	.02	.15	.23	.28	.35	.03	.01	T.	.02	T.	.01			2.02
Woodman Sanatorium.	Fountain						T.	T.	T.	.06	.10								.15	.37	.02	T.	.04	1.55	.13		T.						2.42
Wortman	Arkansas	T.					.20	.30	T.	T.	T.	T.	T.	T.	.30	.10	.10	.10	T.	T.	.10	.20	.30	.10	.30	.10	T.			T.	T.	T.	
Yoder	do				T.			T.		1.12							.17	T.	.66	.15				.52	.07								2.69
New Mexico.																																	
Abbott	Canadian																		.08	.28				.77									1.13
Albert	do																							.73									0.73
Anrora	do					.04				.42	.04	.01		.02	.02		.02		.02	1.15	.01	.18	.60	.70	.02						.04	.04	3.33
Bell Ranch	do									.10	.58									.45	.10			.18									1.41
Black Lake	do							.20	.01	.18					.07	.05			.01	.32		.14	.13	.50								.03	1.64
Cabeza	do																							.55									0.55
Campana	do													T.					T.	*	.46			.10			T.		T.	T.			0.56
Chacon	do									1.62	.14					.12						.20	.17										2.25
Cimarron (near)	do		T.						T.	.09				T.	T.	T.			.03	.24		T.	T.	.80			T.			.06	T.		1. 2
Clayton	do													T.					.29		.30			.57		.01		.03					1.20
Clovis	Red																																
Cuervo	Canadian																							T.					.15				0.15
Dawson	do					T.											T.		.16	.17	.02	T.	.08	.87						T.		.21	1.51
Elizabethtown	do						.20			.25	.05								.28	.40	.12	.16	.05	.23								.60	2.34
Folsom	Dry Cimar'n					T.				.17	T.						.02		.20	.50			T.	1.73	T.	.01				T.			2.63
Fort Union	Canadian						T.							T.			.10		.20		.05			20						.25	T.		0.80
Hayden	do																				.05			40									0.45
Hoosier Ranch	do	.30				.06				T.										.74				39						T.			1.49
Johnsons Park	do								.12	.10	.08						.04		.16	.10				67	.02	.01				.02			1.32
Johnsons Ranch	do										.74									1.40				32						.07			2.53
Kappus	do																																
Lake Alice	do																																
Logan	do																				.10												0.10
Lykins (near)	Red																								.62					.20			0.82
Maxwell (near)	Canadian						.06												.30	.05				.48									0.89
Melrose	Red														T.				T.	.78													0.78
Miami Ranch	Canadian									.13									.43	.27		.10	.09	.65		.03							1.70
Mills (near)	do					T.					T.								.10	.70	.22			1.19			T.			T.			2.21
Montoya	do																			T.	.15												0.15
Nara Visa	do																																
Palo Verde	do									T.									.10	1.08				1.52									2.70
Pasamonte	do																																
Pleasant View	do								.85	.74										1.14			.21							T.			2.94
Portales	Red																																
Raton	Canadian						.01		.01	.15	.08								.13	.18			.08	1.21		.17							2.02
Rociada	do					T.	T.			1.20					.15		T.	.33						1.25									2.93
Rosebud	do																				.33			28			.15						0.76
Roy	do									.15									.35	1.17				.85						T.			2.52
Roy (near)	do																																
St. Vrain (near)	Red																						.14						.26	.86			1.26
San Jon	Canadian																				1.57			T.	T.		T.	T.	.22	T.	T.		1.79
Solano	do					.36				.67									.18					.63							.18		2.02
Springer	do																		.25	.05			.45										0.75
Taylor	do																		.50					.38									0.88
Texico (near)	Red																							1.21			.06	.04			.04		1.35
Trementina	Canadian																																
Tucumcari	do																			.18				.38									0.56
Valley	Dry Cimar'n																																
Vance (near)	Canadian										T.								.03					.23	.04								0.30
Vermejo Park	do					T.								.13					.08	.48	T.	.18	T.	.70			T.						1.57
Wagon Mound	do					.45													.01		.20			.57		.01	.01		.04			.01	1.30
Texas.																																	
Amarillo	Canadian	.01																			.05			.15	T.	.82	.01	.03	.73				1.80
Archer City	Red																								.45	.22							0.67
Arthur City ‖	do		1.46	.70	2.25							T.	T.									T.				T.		T.	.77				5.18

TABLE 2.—*Daily precipitation for July, 1913. District No. 7*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Continued.																																	
Bonham	Red	T.	1.30	2.30																	1.60				.25			1.37					6.82
Canadian	Canadian	.03																			.01				.83			.04	.06				0.97
Childress	Red																																
Chillicothe	do	.87																								.11	.30						1.28
Clarendon ‖	do	1.00	.02																		.48	.23			.35	.08	T.						2.16
Clarksville	do																																0.00
Claude	do									T.																							T.
Dalhart ‖	Canadian																				.01				.58	.09			.16				0.84
Denison	Red		.03	2.96	1.50																	3.50						2.32	T.				10.31
Finley ‖	do	.60	.20	.20																						.70							1.70
Henrietta ‖	do	.05																								.55		T.					0.60
Jefferson ‖	do	1.10		1.00																							.30						2.40
Memphis	do																																
Miami	Canadian	.04									T.														1.90			.29	.07				2.30
Ochiltree	do																																
Paducah	Red																								.35	.40	.12						0.87
Panhandle	Canadian																1.50									.25							1.75
Paris ‖	Red		.96	.75	1.85						T.	T.										.03				T.	T.	.01	.84				4.44
Plemons	Canadian																								.97	T.	.05	.80	.01				1.83
Quanah ‖	Red	.45																								.11	.25						0.81
Ringo Crossing ‖	do		1.47	1.12	.55																	.52					1.20						4.86
Romero	Canadian																				T.			.10		T.							0.10
Sherman ‖	Red		T.	2.70	1.10							T.										1.90				T.	T.	2.12					7.82
Stratford	Canadian																								.86	.12		.62					1.60
Tulia	Red																			T.	.40		T.		2.81	.03	.61	T.	T.				3.85
Wellington	do																				.22					.20							0.42
Wichita Falls	do																																
Winfield	do	.68	1.18	T.																	.85			T.									2.71
Kansas.																																	
Alden	Arkansas	.02							.18	.07									T.	.18	.08			.20					.78				1.51
Anthony	do	.27								T.			.02						.42		T.			.45	.58		T.	.05	.38				2.17
Ashland	Cimarron									.03			.02								.26				.47		.02		.18			.02	1.00
Burlington	Neosho								.08										.94									.06					1.08
Chanute	do	1.49								T.		T.	T.												1.40	T.	T.						2.89
Cimarron	Cimarron	T.											T.						T.	T.	.25					T.		.07	.04				0.36
Coffeyville	Verdigris																																
Coldwater	Cimarron									T.	T.		.15						T.		.19			T.	.23				.34				0.91
Columbus	Neosho	.21		.01			T.			.01	T.	T.	.02							T.	T.			T.	.20		T.	.30	.01				0.76
Coolidge	Arkansas																			1.10								.60					1.70
Cottonwood Falls	Neosho	.52								.75				T.						.19				T.				.20	T.				1.66
Council Grove	do	.17																		T.				.44	.06			.02	.15				0.84
Cunningham	Arkansas												T.											.25	T.				.25				0.50
Dodge City	do	.01				T.				.01			.10						.15	.09	.17				.01			.16					0.70
El Dorado	do	.26								.02			T.	T.						.04					.05			.55	.12				1.04
Ellinwood	do					T.			.03	.13			.04						T.	.12	.02			.17	T.				.14				0.65
Emporia	Neosho	2.20	.12								.41									.45					.23			.04	.10				3.55
Eureka	Verdigris	.50									T.		T.							.42					.72			.33					1.97
Fall River	do	1.60											T.	T.						.05	T.			.01	.21	.90	T.		.15				2.92
Fargo	Cimarron					.29							.14								.62				.20	T.	.31	T.	.82				2.38
Fredonia	Verdigris	1.78								.03		T.	.01							.09	.01			.32	.13	.08	.03		.01				2.49
Garden City	Arkansas				.91															T.				T.	T.		T.	.07	.16				1.14
Greensburg	do																																
Grenola	Verdigris	.87																		.10				.07	.34			.04	T.				1.42
Howard	do	.90								T.			.14	.06						.14	T.				.15	1.36			.04				2.79
Hugoton	Cimarron					T.				T.			T.						T.	.01	.18				.49		.11	.38	.52				1.69
Hutchinson	Arkansas											T.	T.						.95				.15				.20						1.30
Independence	Verdigris	.40								T.		T.	.15							T.	T.			T.	.91	T.	.02						1.48
Iola	Neosho	1.44								.02		T	T.	T.					.16	.02				.01	.51		T.	.12	.02				2.30
Irene	Arkansas			.09									T.							1.02					.01	T.	T.	T.					1.12
Jetmore	do																																
Kingman	do									T.			.06							.06				.33	.12			.33				0.90
La Crosse	do									.07										.70					.08			.13					0.98
Lakin	do		T.		.80							T.								.32							T.	T.					1.12
Larned	do								.09				.05							T.	.07			.18					.12				0.51
Lebo	Neosho	.18								.22									T.	.02				1.06	.06			.02	.02				1.58
Le Roy	do	2.76	.13							T.	T.		T.							.30					T.			.40					3.59
Liberal	Cimarron					T.	T.			T.			.03	T.					T.	T.	.28				.25		.71	.22	.23				1.72
Macksville	Arkansas	.04								.01			.04							.07				.19	.03				.04				0.42
McPherson	do	.18								.21										.51	.16								.19				1.25
Madison	Verdigris	.10								.65			T.	T.					T.	.51				T.					T.				1.26
Marion	Neosho	.10				.01			T.	.15		.01	T.	.22						.16				T.					.03				0.69
Medicine Lodge	Arkansas	T.								T.			.09							T.	.06			.34	.45			.01	.96				1.90
Minneola	Cimarron											20									.54						T.	T.	.70				1.44
Mount Hope	Arkansas	.28								.07		.10	.09						.21					.21	.04				.07				1.07
Neosho Rapids	Neosho	1.25	.08								.43									.05					.35			.05	.40				2.61
Ness City	Arkansas																			.19				.18					.19				0.56
Newton	do									.08										.65				T.				.06	.13				0.92
Norwich	do	.12								T.	T.		T.	T.						T.				.42	.53				.67				1.74
Oswego	Neosho	.48											.07								T.			T.	.43			.23	.09				1.30
Pittsburg	do	.12																						.85		.10		.20					1.27
Plains	Cimarron																			.50	.55				.25		.35	.11	.77				2.53
Pratt	Arkansas												.10						T.					.15	.15				.52				0.92
Richfield	Cimarron									T.						T.				.78				.17	.47	T.	.08	.04	T.				1.54
Rome	Arkansas	.11											T.	T.						.09				.30	.90			.42	.30				2.12
Sedan	Verdigris	1.32	.12								.32		.04	T.						.12	.13	T.		T.	.12	.10		T.					2.27
Toronto	do	.80								.04									.20						1.78		.10						2.92
Ulysses	Cimarron				T.																					T.	.45						0.45
Walnut	Neosho											T.	T.												1.86	.22	T.	T.						2.08
Wellington	Arkansas	.20									.06		.06	.02						.08				.38	1.38			1.39	.63				4.20
Wichita	do	.01								.01			.05	T.						.11	.01			.14	.08		T.	.75	.12				1.28
Winfield	do									.60		T.	.10	T.					T.	T.	T.			.16	.65		T.	.95	.10				2.56
Yates Center	Verdigris	.48											T.	T.						T.					.39		T.	.10					0.97
Oklahoma.																																	
Ada	Canadian		.26								.02											.03				.02		.76				.25	1.34
Altus	Red	.44																			.30					.61	.01						1.36
Alva	Arkansas	T.									T.	T.								T.	.20	T.	T.	T.	2.10		T.						2.30
Apache	Red	1.76	T.																		.67					.01							2.44
Arapaho	Washita	1.57												T.						T.	.16			.04									1.77

TABLE 2.—*Daily precipitation for July, 1913. District No. 7*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Oklahoma—Contd.																																	
Ardmore	Red	T.	1.66								.03										T.	.80						1.20					3.69
Bartlesville	Arkansas	.36	.07								T.		T.	T.											1.11		.12	.66	T.				2.32
Beaver	Canadian																																
Cache	Red	2.05																							.40								2.45
Calvin	Canadian		.30								.10										T.				.10	1.10		.65					2.25
Chandler	do	.10	1.00											.04										T.	.45			.20					1.79
Chattanooga	Red	.92																			.46					.50	.10						1.98
Chickasha	Washita	.62	.63	T.																		.12											1.37
Cleveland	Arkansas	.49									T.	T.	.31								T.			.02	.05		.36		T.				1.23
Cloud Chief	Washita	3.18																			.61												3.79
Crawford	Canadian																																
Durant	Red		.20	1.10	3.04						T.										T.	.68			.10	.16		.08					7.10
Eldorado	do																																0.26
El Reno	Canadian	6.50	.27											.18	.04						.67												7.44
Enid	Cimarron	.55																				T.		.40		.05							1.22
Erick	Red	T.																			.17				.07	T.	T.						0.24
Eufaula	Canadian	.55	T.	.02							.24		1.21											T.	.38	.18	T.	.27					2.85
Fairland	Arkansas	.08									.75		T.											.03	1.50	.06	.35	.10	T.				2.87
Fort Gibson	do	.05		T.							.25	T.		.13	T.										1.30	.05	T.	.78	.03				2.59
Frederick	Red	.85										T.	T.								.20			.02		.20							1.27
Geary	Canadian	4.32								T.				.14		.04				.02	.20												4.52
Goodwell	do												T.												.78	T.	.06	.06					1.10
Guthrie	Cimarron	3.25																	T.				T.		.81		.24	.33					3.25
Guymon	Canadian												T.													.02							1.38
Hartshorne	do			.02																	T.					T.	.28						0.04
Healdton	Red	1.22									T.																						1.50
Helena	Cimarron													.30																			1.70
Hennessey	do	1.40																			.46					.98	.01						2.75
Hobart	Red	1.30																								T.	.91						1.22
Holdenville	Canadian		.10								.21														.80			T.					1.89
Hooker	do									1.00	T.		.02			T.			.07							.24	.80						6.97
Hugo	Red	.68	2.50	2.63							.12														.81	.24		T.	T.				1.19
Hurley	Cimarron									T.	T.			.14																			
Idabel	Red																																0.72
Jefferson	Arkansas													.11										.51	.05			.05					2.34
Kenton	Cimarron									T.	.07			T.					.03	.89	.02				1.33								2.32
Kingfisher	do	2.13										T.	.04	.07							.08						T.						2.11
Lawton	Red	1.42	.02																	.02	.38				.02	.25							2.97
Lawtonka Lake	do	2.42																			.38					.13	.04						2.11
McAlester	Canadian		.08		.98						.07																	.98					4.00
Mangum	Red	2.68		T.																	.55	.70				.07	T.						4.00
Marlow	Washita	.30			T.																.33				.20								0.83
May	Canadian																																
Meeker	do	1.00																															1.00
Muskogee (1)	Arkansas	.05											.07												.30			1.00					1.42
Muskogee (2)	do	T.									T.		.22												1.00		.45	.22					1.89
Mutual	Canadian																																
Neola	Washita	3.42	T.										T.								.48				T.	.10							4.00
Newkirk	Arkansas	.30								T.			.26							T.	T.			.25	.71								1.52
Norman	Canadian	1.00		T.	T.						T.										T.			T.	T.	T.	T.						1.00
North Muskogee	Arkansas		T.	T.	T.						.50			.36											2.00	T.	.01	.66	.03				3.56
Oakwood	Canadian																				.11						T.		.20				1.64
Okeene	Cimarron	.81											.19	.33										.02	.20		.08						0.78
Okemah	Canadian	.18									.30										T.			T.		T.		T.					5.06
Oklahoma	do	5.06		T.							T.		T.											T.			.88	.17					2.05
Okmulgee	do									.50			.50								.03				.07	.03	.23						1.46
Pauls Valley	Washita	.94	T.								.16													.03	.06		.36						0.62
Pawhuska	Arkansas	.16											.01								T.			.06	T.	T.	.65	.10					2.72
Perry	do	1.75											.16								1.30				.02		T.	T.					1.59
Rankin	Red	.02								.01										.24	1.60							1.52					5.15
Ravia	Washita	1.30	.73																					.07	.03	.15	.74						1.79
Sac and Fox Agency	Canadian	.80																							T.			.37					1.82
Shawnee	do	.19	1.26																		.63					.90							1.53
Snyder	Red												T.		.40	T.						T.	.04	T.	T.		T.	.65					3.49
Stillwater	Cimarron	.90	1.50	T.																													
Tahlequah	Arkansas										T.	T.	.10	.46								T.			1.34			.30					3.12
Tulsa	do	.48	.44																														
Vinita	do										.65			.48											1.80		.77						3.70
Wagoner	do													.20	T.						T.			T.			T.	.03					1.28
Waukomis	Cimarron	1.05		T.								T.	.20								.45			.03		1.60							2.71
Waurika	Red	.63		T.																	.30	.30			T.								7.86
Weatherford	Canadian	7.00	.02								.05			.17	.02										1.00		1.60		.15				3.40
Webbers Falls	Arkansas			T.							.50			.15											.10		.65	T.					1.05
Whiteagle	do													.30											.65		T.	T.					0.99
Woodward	Canadian	.09	T.	T.							T.			T.							.25				1.02	.02		.68					2.02
Wyandotte	Arkansas	.03									.02			.25																			
Missouri.																																	1.61
Belle	Meramec	.81									.80					T.																	6.45
Birchtree	Black																												T.		.35		5.93
Cape Girardeau [1]	Mississippi		.20	1.20						T.	.80	1.80		2.10											T.	.83	.19				T.		2.71
Cardwell	do		2.85	.28					.13	.06	.36	.05	.26	.94							T.				T.	T.	.92				T.		7.68
Caruthersville	do	T.	.08	.09					.18		.52		.25	.67											1.21	.52	T.	.40	T.				4.15
Cassville	White	1.08	T.					T.			.50	2.67	1.25	.05											.95	.92	.04	.06	.02				3.96
Dean	Neosho	.94						T.				.63		.59											T.	.30	.20	.05		.15			4.88
Doniphan	Black		T.	T.					.61	.46	1.23	.31		.65													T.	.32	.33		1.30		4.70
Fruit City	do	.03		.11					.32		1.31	.73		.43											.60	.16			.33		.12		5.27
Gano	Meramec	.80		.16					.31	.55	.53			1.14																	.17		5.15
Goodland	Black	.84		.15							2.80			.80													.13		.38				3.73
Hollister	White										.20	1.95	.55												1.00	.53		.92					5.53
Ironton [1]	Mississippi		1.25		T.	.08				.27	.50	T.		.90											T.	.05			.58		T.	.10	0.70
Jackson	do	.40	.01						.01	.82	1.27		2.09												.75			.12		.06			3.77
Joplin	Neosho	.50											.20																				
Koshkonong	Black	T.	T.	.14					.09	.60	T.	.32		.68											.02	.68	.20	.60			.44		4.96
Lamar [1]	Neosho		.08						T.		.15	T.		.31											3.36	T.		.59	.03			.44	3.12
Marble Hill	Mississippi	.55	.30						.50		.83	.25													.57		.10		.02				2.40
Mountaingrove	White	.56			T.				.04	.45		1.45		.62												T.		.08		.20			5.49
Mount Vernon	Neosho	.95							1.63		.13			.48											1.80						.50		1.95
Neosho	do	.15									T.	T.		1.06											.53		.02	.19	T.				2.73
New Madrid [1]	Mississippi		.02	.10						.15	.85	.30		.90							.13	T.			.05	.07		.02	T.		.41		2.67
Oakfield	Meramec	.73			.09					T.	.13			1.10							.20	T.			.11		.09		.30	.27		.19	3.91
Rolla	do	.41			.47	.20	.28	.28	.18		.30	.63																					
Springfield	White	.11			.02	.02					T.		.74	.10											T.	.95	T.	.04	.11	T.		1.75		3.84

TABLE 2.—*Daily precipitation for July, 1913. District No. 7*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Kentucky.																																	
Blandville	Mississippi		.51							.27	2.78	.52	1.37												T.			T.			1.22		6.67
Tennessee.																																	
Arlington ‖	Mississippi			T.	.11				T.	.20	.57	.55	1.30	.12											1.50	.50				.14	2.40	7.39
Bolivar ‖	do		.90								.50	.09	1.18	.75										.29	.06	T.	T.			.50	.14	4.41
Brownsville ‖	do		.04	.59	T.					.38	.75	.22	1.84	.07										.05	T.					.15	T.	4.09
Covington ‖	do		.60	.40	.37					.28	.23	.55	2.10	.06											.02						1.00	5.61
Dyersburg ‖	do	.01	.40	.10					T.	1.40	.10	.10	.80		T.										.50	.50				T.		3.91
Jackson	do	T.	2.15					.05		1.12	T.	.40	1.45																			5.17
Kenton	do			.49				T.		.47		.26	.94												T.	T.			T.	T.		2.16
Memphis	do	T.	1.24	T.				T.	.02	.78	.17	1.23	2.07											.20	T.	T.			.13	.07		5.91
Milan ‖	do	.07	T.	.15	.04				T.	.27	.55	.05	1.76	T.												.02	.01	.31		.33	T.	3.56
Trenton	do		.41	.39						.71		.87	1.04												.46	.56			2.00			6.44
Union City	do	.14	1.20					.02		.30	.24	.20	1.30													T.			T.		.05	3.45
Arkansas.																																	
Alicia	White		2.10	.20					.10	.35		.20	.75											.20								3.90
Amity	Ouachita		*	*							2.06													2.50	.20							4.76
Arkansas City ‖	Mississippi		T.	.16								1.52												.68		.30				.16		2.82
Batesville ‖	White			.09	.06					.18	.03		.58	.36											.02	.04			.44	.64		2.44
Bee Branch	Arkansas									.20	.30		3.25											.50	.50	1.40				.45		6.60
Bentonville ‖	do	.05			T.					.20	.02	1.25	.08										T.	2.31	.44	.25	.04	T.				4.64
Bergman	White																																
Black Rock ‖	do	.02	.18	.48	.05				.27	.29	.21		.60	T.											.02	.85	.04	.85					3.86
Brinkley ‖	do			.36	.26						.11	.26	.06	1.06												.33	.46			.56	1.23	4.69
Calico Rock ‖	do										.30		1.10											T.	.30	.90						2.60
Camden ‖	Ouachita	.05		.69	.09			.01			1.63	.52													1.51						.05	4.55
Centerpoint	Red	.61	.21	T.			.99				.93											1.10		.20	T.					1.25		5.29
Clarendon ‖	White				.35					T.	.15	.25		.10											.14	.41	.06		.03	.16		1.65
Conway	Arkansas		T.	.37			.06						2.23											.04	.29	.05				2.11		5.15
Corning	White	.01	.56	.06				.32	.90	2.10	.45	.05	.57							.08				T.	.16		.80					6.06
Dardanelle ‖	Arkansas				.10		.08	.05			1.24	.18		.22										T.	.43		.20		.24		.88	3.62
Dodd City	White	T.		.10				T.		.10			.70										.50	.40	.40							2.20
Dumas	Arkansas			.38			.50		.80	T.	.35	.98													.85				.25			4.11
Dutton	White		2.03	.45			.38			T.	.80		1.91											T.	1.15	.44	.51					7.67
Eldorado ‖	Ouachita	.08	.75	.20	.24							.86										.20			1.04	.25					.28	3.90
England ‖	Arkansas	T.	T.					T.		T.	.95	.27	T.	T.											.35	.50	.02				T.	2.09
Eureka Springs	White	.11			T.		T.			.28	.50		.61											1.08	1.42		.70					4.70
Fayetteville	do		.07		.05		.27			.53	.46		3.88											1.25	1.06	.04	.65					8.26
Fordyce	Ouachita		.58	1.35			.15				1.40														.40						.95	4.83
Fort Smith	Arkansas	.01	.46	.15			.58			.46	.14		.25											.92	.28	.44	T.			T.		3.69
Frazier's Turnpike	do																																
Fulton ‖	Red			1.48	.18						.40	T.													.34	.34						2.74
Georgetown ‖	White		1.66		.28						.15	.75	.80								.36				.04	.20					.56	4.80
Hardy	do	T.	.25	T.			T.	.02	.61	.10	1.00		.25	T.										T.	1.60	.50	T.					4.33
Helena ‖	Mississippi				.13						.22	1.60	.06	.28											.10	.72				.35		3.46
Hot Springs	Ouachita		.20	.42			.20		T.	.05	2.35	.15												.80								4.17
Huttig	do	.87	1.80	.11																				.30	.10					.40	.08	3.66
Jonesboro	White		1.30					.60	.40	1.20			.95												.15					.10	.10	4.80
Junction	Ouachita	T.	1.19	.86			T.				T.										T.			.51	.38					T.		2.94
Lake Farm	Arkansas			.15					.15	.61										.20				2.02				.38				3.51
Lewisville	Red	.80	.32	.30							.48													.41						.60		2.91
Little Rock	Arkansas		.12	.02		.02	.12			.01	.86		.04							1.53				.17	.69					.16	T.	3.74
Lutherville	do		.03	.04			.25				1.15	T.	.86											.19	.09	1.00	.06			.12		3.79
Malvern ‖	Ouachita			T.	.20			.25			.95	.87													1.70	1.20						5.17
Mammoth Spring	White							.15	.64		.49		.41											.18	.89	1.42	.30			.91		5.39
Marked Tree ‖	St. Francis																																
Mena	Ouachita	.73		.40							1.52									.06				.10				T.		.02		2.83
Newport ‖	White			2.00	.25						.98		.06	.80												.03			.05	.25	.12	4.54
Pine Bluff ‖	Arkansas			.12	.23			.46			.04	.33		T.							.02			T.	3.40	.45				.08		5.13
Pocahontas	White		.08					.38	.17	.10	.60		.45												1.70	.25	.10					3.83
Pond	Arkansas	T.	T.								.10		1.05										T.	1.30	1.14	.13	.24					3.96
Portland ‖	Ouachita			.43	.04			.04	.12	.22	T.	1.35														.84	.15						3.19
Prescott ‖	do	.09		1.35	.12						.25	.27												.70	1.72	.92						5.42
Rogers	Arkansas	.27	T.								1.32		.71										T.	2.80	3.20	1.12	.92					10.34
Springbank ‖	Red	.02	.14	1.01	T.						.05	.86													.10	.19						2.37
Stuttgart	Arkansas		.06	.28						.04	.67	.03	T.							.09				.02	.73						.10	2.02
Subiaco	do		.53	.12			.13			.10	1.22		.28										T.	T.	.12	.41	T.					2.91
Swain	White		.37	.20			2.41			.50	.65		2.30											.73	.80	.29	.17		.10	T.		8.52
Texarkana ‖	Red	.05	.55	.73	.12			T.				T.										T.			.38	.30					.58	2.71
Warren ‖	Ouachita	.74		.08	.50							1.50													.50	.50				.25		4.07
Whitecliffs ‖	Red		T.	.23	.05			.04			.20											T.			T.	T.						0.52
Wiggs	Ouachita		.35	.49			T.			T.	1.82									.07				.26	.27	T.			.39	T.	.12	3.77
Wynne	St. Francis	.05	.02	2.17	.41					.70	.56	2.20	4.60	.67																	.16	11.54
Mississippi.																																	
Anguilla	Yazoo		.35	.12			.60		.90			.70												.20	.50	T.			.10	.15		3.62
Austin	do	T.		.17				T.	1.07	.24	T.	.79	1.90	.02									T.	.11	.42				T.	.47		5.19
Batesville ‖	do			.06							.09	.60	.37											25		03	.08			.65	.70	2.83
Big Creek	do			.05				T.		T.	.02	.10	.03											.25	.02		T.		.22		T.	0.69
Canton	Big Black	.20	.65	.09			.10				.61	2.00	1.07											.04	.11	.31			.30		.22	5.70
Charleston	Yazoo		T.	.60								.15	.23											.30	.50	.15	.37	.10		T.	.27		2.67
Clarksdale ‖	do		.35	.10	.11					T.	.12	.06	.05	.50											.68		.32				.63	.01	2.93
Cleveland	do	.65	.75	.48			T.		.07	T.	.31	.30	T.	T.																			
Coffeeville	do	.08	.37	.42					.07	.02	.11	.39	.08										.02	.03	.15	.05	.04			.33		.25	2.41
Corinth ‖	Mississippi										.30	.80	.76	.56											.02	1.62		.08	.22		.30	.04	4.70
Crenshaw	Yazoo		.15						.20	.10			7.00											.10	.05	.06			.15		.20	.10	8.11
Duck Hill	do	.54	T.	T.				T.	T.		.57		.33											.15	T.	T.	T.			.77	.12	T.	2.48
Edwards	Big Black	T.	.05	.10	T.	.10	.70	T.		T.	.30	T.	.10	T.									T.	.10	T.	.66		T.	.02		.06	2.29
Fayette	Mississippi	T.	1.62				.72		2.72		.40		.23										.03	.05	.08	T.	.15		.14	.07	.80		7.01
Greenville ‖	Yazoo		.33	.05	.66					.17		1.64	.03													.05		.04		.16	1.00	4.13
Greenwood ‖	do		.78	.28	.04						.30	.38	.04											.10	1.08	.65				.58		4.23
Grenada	do																																
Hernando ‖	do		.10		.70					.02	.21	.20	3.30	1.60												.02				.70	.64	7.49
Hickory Flat	do										.20		2.25											1.25	.30				.30			4.30
Holly Bluff	do		1.07	.03			.30		T.		.59	.09											T.	.13	.36	.03			.11	T.	.28	2.99
Holly Springs ‖	do	.65	.40	.18	.01						.33	.05	2.00	1.16										T.	.02	T.	.08				.14	5.02

TABLE 2.—*Daily precipitation for July, 1913. District No. 7*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Mississippi—Con.																																	
Kosciusko ‖	Big Black		.05	.14							.02	.65	.19	.75											.12	.15	.06				1.58		3.71
Malone	Yazoo	.34									.21	T.	1.90	3.10											T.	.30							5.85
Moorhead	do		1.44				.24		.05		T.	2.64													.70	.44				.54	.04	.37	6.46
Natchez ‖	Mississippi		2.08	1.33	T.			1.21		.13		.24	T.	.67											.05	.24	.09				.08	.10	5.62
Pontotoc	Yazoo		1.00								T.	T.	1.50												1.00	.80		.70		T.		T.	5.00
Port Gibson ‖	Mississippi	.81	.08	.12				T.		1.02		T.	T.	.67										.25	T.		.20				.11	.13	3.39
Rosedale ‖	Yazoo		.05	.10								.25													.05		.34				.20		0.99
Shoccoe	Big Black				.25	.05	.14				T.	1.04	.20											.64	.24	.06				.43		.60	3.65
Suffolk	Mississippi		1.06			.07	.29		.69		.29	.60	.35									.91		.29	.02	.18	.43			.06	.46	T.	5.70
Swan Lake ‖	Yazoo		.14	.10								.06	.10													.54	.10				.55		1.59
Tchula	do	T.	.45				T.		T.		.15	.33	T.												T.					.48			1.41
University	do																																
Utica	Mississippi	T.	.53		T.	.95	.20						T.			T.	T.						.20	.20	.10	.10	.10			.05		.47	2.90
Vicksburg	do		.42	T.			.01		T.		.08		.08										T.	.05	.22	T.	.18			T.	T.	.02	1.06
Water Valley	Yazoo	.50	.10	.20				T.		T.	.10	.15	.50											.25	.50	.10	T.	.15	T.	1.25	.10	.50	4.40
Woodville	Mississippi	.58	1.65	.25				.06				.06	T.				.02					T.		.64	.68	.05	.09	.13					4.21
Yazoo City ‖	Yazoo		T.	.04				T.				.43	.29	T.												.03	.06	.34			.31		1.50
Louisiana.																																	
Abbeville	Coast	.10	1.01				.15		.15			.10								T.	.72	.75		6.85		.15	.02	1.04		.03	.55	.15	11.77
Alexandria ‖	Red		.70	.46				.60		.11															T.	.05	.30			.63	2.00		4.85
Amite ‖	Coast	4.00	.40	.70			.40	T.				.25	.20	T.	T.	.70	T.	T.				2.25	.30	T.	2.00	.60	.20	1.00	.40	T.	T.	1.00	14.40
Antioch	Red	1.35	1.20	.18							18	1.02													.75	.01				.40			5.09
Avoca Island	Coast	.45	.60	.10			.80				.85	5.50									.08	.10	1.52	2.60	.05	.43			.25	.18		.63	14.14
Baton Rouge ‖	do	.06	1.15	.13						.15		T.	.12				.03	.04				.12	.85	.67	1.00	.20	.09	.80			.28	.32	6.01
Burnside	do	1.60					1.60					0.90		0.06		0.55					0.30	0.72	1.04	3.00	0.07		1.07	0.30		0.80			12.01
Burrwood	do	.72					1.26				.20				T.						.20		.32	.42				T.			.94	.05	4.01
Cades	do		.16				.31		T.			.38					T.	.17			.62	.91	.09	2.57	T.	.33	T.	.13	.04	T.	T.		5.71
Calhoun	Ouachita	.28	.09				.72				.12														.20	.21	.35				.17		2.14
Cameron	Coast		.35				.68		.54	.39	.08	.06	T.									.58		1.52	.06	.17			.18	.14	1.18	5.93
Carrollton	do	.39	.58	.07			.01	.91			.12	2.44	.03		.20	.69		.33	.01		.45	.16	.50	.24	.33	.35	1.02	.30	.12	.35	.55		10.15
Cheneyville ‖	Red		.10	.12				.37									.35					.40		.26		.30	.14		.20			.30	2.54
Clinclare	Coast	2.05	.30									.17									.48	1.64	1.60	.90			.73			.30	T.		8.17
Clinton ‖	do	2.68	.65	.23			1.20	.22		.02		1.39	.41	T.	T.		T.					.36	.31	.05	.88	.05	.30	.72	.35		.05	.21	10.08
Collinston	Ouachita	1.42	1.70	.05				.22	.07		T.	.90	.12												.18	1.07	.40	.06			2.53		8.72
Covington ‖	Coast		.10				.55					.45	.65							.85		.12	1.84	.55	.40	.21	.35				.05		6.12
Dodson	Red	.48	.45	.02				.50					.86												T.						.92		3.23
Donaldsonville ‖	Coast	4.00						1.20			.10	1.20	T.			.10	T.					2.00	.05	2.35	3.85	.05		1.50	.40		2.25	.30	19.35
Dutchtown ‖	do	.47	.19				.70				.14	.35									1.84	.45	.50	2.71	.19	.06	.20	.90		.29			8.99
Farmerville	Ouachita	1.73	1.78				.38	.22	.20		1.72	.20													.30	.57					1.03		8.13
Florence ‖	Coast		1.80			1.30	.60		1.00							.03				1.30	.50	4.20	.80		.10					2.00		13.63
Franklin ‖	do	.85	.50	1.02			T.	.94		2.31		.66	2.73		T.	.01	.47					.12	.15	1.54	1.70	.15	.05	.13	.09	.02	.70	T.	14.14
Franklinton	Pearl	.30	.10			.34	T.	.20			1.15	1.16		.10			.10	.20	1.25	T.	1.12	.47	.40	.81	T.	.28	.29		.60	.20		.90	9.97
Grand Cane ‖	Red	.29	.03	.43	.70							.41		.15										.56			.91				1.08	4.56
Grand Coteau	Coast		.85						.60	.20	.01	.15	T.										T.	.83	T.		.37	.30		1.73	.33	.04	5.41
Hammond	do					2.15	.10				T.	1.15	T.									.30	T.	.05	1.42	.60		.15		T.		.05	5.97
Houma	do	.60	.40				1.20				2.00	1.00										.30	.30	.95	.10	.20	.15	.45	.05		.20			7.90
Jena	Red																																
Jennings ‖	Coast			1.81				.17		.79			.34	.22								.64	.15	.74	.08	.20	.07			.34	.11		5.66
Laark	Red		1.55	.05							.60		T.												1.10						.40		3.70
Lafayette ‖	Coast	.33	.06	1.35				.39		.59			1.37	.02			.05					.28	.05	.92	.82		.02	.34	.60	.18	.02		7.39
Lake Charles ‖	do		1.00	.12		.87				1.03			.05				.03					1.50	.10	.60	.35	.30						.40	6.35
Lakeside	do		.30	1.42						2.92	.40		.30	.10	.02						1.11		2.20	5.30							1.40	.40	15.87
La Rose (near)	do																																
Lawrence ‖	do	.48	.30				.04	.62				1.09	.37								.86	.44	.24	.04	.64	.64	1.13	.03		.12		2.00		9.04
Liberty Hill	Red	.20	.26	.19							.75														T.								1.40
Logansport ‖	Sabine	.25	2.47	.20	.13																						.30					.14	3.49
Melville ‖	Red	.83	.10	.50						.09		.05	.40	T.	T.							.21	.20	.25	.08	T.	.09	T.	T.	.11	T.	.79	3.70
Minden ‖	do	.55	.96	.50	.95							.08		.20											.10	.54	.04					.55	4.39
Monroe ‖	Ouachita		.02	.68	T.			T.	.01	.56		.08		.62											T.	.18	.01	.37	.01		.03	2.02	4.65
Morgan City ‖	Coast	1.86	.14	.69			.02	.49				1.51	5.08									.06	.11	1.79	1.35		T.		.03		.28	.23	13.64
Napoleonville	do	.90	.50				.80		.45		.40	1.60				.15						.10	.35	1.35	2.45	.25		.55		.65	1.35			11.85
Newellton	Mississippi		2.69				.13	.15	.85		.47		.83											.08	.03	T.	.10	.42					T.	5.75
New Iberia	Coast	T.	2.00	.05			.30				T.	.60										.40	T.	.40	6.25	.25	.60	T.	.35	1.05	.15	T.	T.	12.40
New Orleans (1)	do	.08	.16			T.	.78				.10	.98	T.			.05			T.	.57	.70	.11	.35	.83	.10	.29	.08	.01		.18			5.37
New Orleans (2)	do	.15	.29					.95			.11	2.08				.21	.92					.12	.09	.26	.60	.33	1.34	.17	.03	.27	.15		1.21	9.28
New Orleans (3)	do	.04	.05				.70				.14	1.65					.65				.28	.25	.02	.13	.31	.22	.55	.03	.12		.11	.06	.03	5.34
New Orleans (5)	do		1.24				.67				.28	1.32			.33						.58	.47		.33	.43	.10	.41			.57	.14	.07		6.94
New Orleans (6)	do	.11	.16				.70				.11	1.11									.61	.66	.62	.34	.91	.03	.30	.03	.05		.11			5.85
New Orleans (7)	do	.02	.05				.70				.78	1.82					.52				.68	.10	.06	.08	.36	.03	.73	1.18	.04		.18			7.33
New Orleans (8)	do	.06	.32				.72				.27	1.60				.10					.27	.24		.32	.86		.10		.04		.09			4.99
Opelousas ‖	do	.12		1.89						.27			.50										.18	.82	.13	.05	.33	T.	.67	T.		.11	1.91	6.98
Paradis	do	.14	.19				.25				.15	1.35		.15	.50						.43		.27	.41	.22	2.50		.84	1.09	.20	.83			9.52
Pearl River ‖	Pearl	.42	.02				.10	.46				.34	.52					.14	.20		.02	.36		.16	.62	1.22	.08	T.		.42	.14	.06		5.28
Plain Dealing	Red	1.57	.16								.33												.02			.40	.04						2.52
Rayne ‖	Coast	1.10	T.	.30						.30		T.											.74		.60	.40		T.	.74	.15		T.	T.	4.33
Reserve ‖	do	.06		.43				1.07					.70											.43	.81	2.05		1.54					7.09
Richland Plantation	Red	.14	.23	.50				.40		.05				.28	.02								.13			.02	.71	.05			.05		1.04	3.62
Robeline ‖	do	.50	.40	.60				.30																								T.	1.80
Ruston	Ouachita	.73	1.37	.34				.21					1.23												.25	.02					.39		4.54
St. Francisville ‖	Mississippi	.32	.28	.03	.14			.03		1.52		1.43	2.20	.04				T.				.09	1.03	.65	.48	.09	1.05	.85	.04		T.	.03	10.30
Schriever ‖	Coast	.30	.30	.50				.50				2.00	2.70									1.30	.20	1.40	2.40	.40		.50		.60	.35		13.45
Shreveport	Red	.16	.20	.12																					.04	.03					.06	.09	0.70
Simmesport ‖	Coast	.44	1.96	1.11				.09		.03			.18	.46									T.		.03	.40	.25	.26	.15			.69	6.05
South. Univ. Farm	do	.10					.15				T.	2.15					T.						.30	.15	.45	.30	T.	.10	T.	.20		T.	4.09
Sugartown	do		1.24	.12																	.52		.32		.34				.24		.52		3.30
Tallulah	Mississippi	.29		.16	.28					.94		.06		.32												.25	.12	.15				.20	2.77
Walker	Coast	.50	.50			.25						.25	.20				2.40			1.70		.15	2.05		.75	.03	.15		.05		.16		9.14

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 7, Lower Mississippi Valley.*

Date.	Colorado.						New Mexico.				Texas.				Kansas.										Oklahoma.			
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris. §§		Dodge City.		Ellinwood.		Iola.		Liberal.		Wichita.		Ardmore. §§		Bartlesville. §§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	90	59	75	37	85	61	91	60	83	50	89	61	93	70	88	63	92	65	83	68	89	67	85	69	87	72	83	73
2	101	70	75	38	100	59	94	64	87	53	93	64	84	72	92	65	95	67	90	66	96	63	90	68	88	72	95	70
3	100	63	75	41	100	56	97	62	89	46	95	64	78	71	94	70	95	71	89	71	103	74	88	74	82	72	94	73
4	100	70	72	45	97	57	98	65	92	50	93	66	90	71	98	70	100	73	92	74	100	71	94	72	91	74	96	76
5	100	69	78	40	92	65	92	62	89	56	93	66	93	73	97	75	101	70	96	74	100	71	97	73	97	73	100	77
6	104	69	77	45	100	68	95	64	87	53	93	65	96	69	99	70	104	75	98	75	100	68	100	76	101	75	103	80
7	104	69	75	45	100	64	100	66	90	52	95	67	98	69	101	72	105	77	95	73	102	71	101	78	102	71	104	79
8	104	68	75	44	94	69	98	64	88	59	97	68	99	73	105	71	110	77	99	77	104	74	102	75	105	76	103	80
9	98	79	73	40	89	65	91	69	80	53	97	68	100	74	97	72	93	72	88	68	99	83	91	74	105	75	98	80
10	99	69	68	43	89	62	93	65	87	56	94	71	97	75	92	68	95	60	90	61	95	77	92	65	104	75	101	68
11	92	66	65	41	80	67	94	64	88	54	96	71	95	74	91	69	92	74	101	69	94	69	98	76	105	74	105	70
12	109	60	73	36	90	57	94	64	90	52	95	66	93	75	89	61	93	59	90	70	95	71	87	70	98	76	85	74
13	109	60	74	41	101	61	102	65	91	50	98	69	92	73	103	74	101	73	92	70	108	75	93	75	100	76	96	80
14	106	67	72	47	97	66	101	65	89	57	101	70	93	73	103	77	106	77	99	77	108	75	98	78	100	76	102	80
15	104	69	66	43	97	65	96	68	87	59	99	72	94	72	103	74	105	74	101	75	106	75	100	76	102	75	104	75
16	101	67	69	41	91	65	100	69	85	51	95	64	96	71	102	76	106	76	102	73	102	80	100	75	102	71	105	75
17	102	62	67	43	90	58	96	64	85	52	92	63	96	72	99	69	104	85	101	72	100	66	99	74	100	72	105	78
18	95	65	68	41	81	61	91	65	80	56	94	66	100	72	96	67	99	70	102	69	99	67	102	76	105	72	108	81
19	85	61	61	39	67	59	85	61	75	51	88	63	102	69	82	62	85	60	88	68	89	65	85	67	107	71	93	75
20	81	58	60	41	76	61	79	62	67	52	76	60	93	72	87	63	92	66	88	63	82	60	89	69	87	74	96	70
21	87	59	60	42	82	59	85	59	76	54	86	58	94	70	87	61	93	56	87	57	90	58	88	62	95	68	93	65
22	96	66	65	41	89	64	94	63	79	57	92	63	96	70	92	64	98	64	95	58	96	64	94	64	97	62	99	64
23	89	63	63	43	72	61	88	57	78	54	93	63	95	69	80	64	87	70	92	69	93	65	88	67	100	66	98	73
24	80	62	62	42	80	59	88	56	80	46	87	62	90	71	81	63	86	69	82	65	79	65	79	66	104	75	82	70
25	93	62	60	35	88	54	93	59	80	46	93	59	95	72	94	64	95	65	88	63	94	64	89	66	98	72	91	71
26	97	59	65	33	84	55	95	57	78	47	91	60	93	71	89	66	95	65	95	70	91	57	91	71	94	72	95	72
27	92	56	56	33	82	54	93	57	81	47	96	64	92	71	94	66	101	71	90	68	91	61	90	67	93	69	93	71
28	93	56	66	30	88	51	95	65	83	44	90	62	93	70	93	62	98	64	98	70	95	63	93	68	95	71	100	74
29	99	60	67	36	94	55	93	61	81	47	87	63	95	72	94	64	99	76	100	71	95	.....	96	74	98	72	102	75
30	99	65	67	37	92	64	93	60	84	45	91	66	100	72	97	69	101	71	100	73	97	.....	98	74	105	70	102	76
31	100	64	70	36	82	60	85	63	80	55	88	67	91	71	89	64	92	67	96	71	92	.....	92	74	106	71	104	74
Mns.	96.5	64.3	68.4	40.0	88.7	60.7	93.1	62.7	83.5	51.7	92.5	64.9	94.1	71.6	93.8	67.6	97.4	69.6	93.8	69.3	96.3	68.5[c]	93.3	71.4	98.5	72.3	97.9	74.2

Date.	Oklahoma.														Missouri.										Blandville, Ky.		Jackson, Tenn.	
	Enid.§§		McAlester.§§		Mangum.§§		Muskogee.§§ [1]		Oklahoma.		Weatherford.§§		Woodward.		Caruthersville.		Ironton.§§		Lamar.§§		Olden.		Springfield.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1	85	70	91	71	88	68	96	72	81	67	82	68	85	68	92	72	92	68	83	69	.....	.....	83	69	95	71	98	71
2	90	67	93	71	92	71	85	70	87	69	88	70	88	64	95	74	90	68	95	65	.....	.....	90	69	89	71	94	72
3	90	71	83	72	99	72	92	71	85	70	90	71	91	71	89	72	87	70	94	65	.....	.....	87	69	86	72	89	72
4	91	71	91	71	98	70	100	75	86	74	90	72	89	68	94	70	91	71	95	71	.....	.....	89	72	90	71	94	70
5	95	72	95	75	98	73	102	74	89	72	94	70	94	72	99	70	95	70	100	74	.....	.....	95	71	94	74	96	70
6	98	72	101	73	100	72	102	75	92	72	97	70	96	72	99	76	93	61	98	79	.....	.....	92	73	94	74	.....	.....
7	100	73	102	72	101	72	104	71	92	72	98	72	96	73	87	69	83	61	99	72	.....	.....	85	71	82	66	95	64
8	102	74	105	74	103	72	105	76	94	72	100	71	100	69	91	66	90	65	102	76	.....	.....	93	72	90	64	97	63
9	100	74	104	79	106	73	94	77	94	72	102	71	97	73	86	70	93	66	88	72	.....	.....	92	76	86	70	83	70
10	97	66	97	72	104	74	100	71	93	70	97	69	96	68	91	72	87	64	96	63	.....	.....	88	69	84	67	90	70
11	106	75	99	75	107	74	92	74	97	75	105	72	100	75	85	72	90	63	98	70	.....	.....	91	68	82	72	86	72
12	96	71	97	75	100	73	94	75	90	73	93	72	95	69	82	69	86	66	89	69	.....	.....	80	68	81	67	.....	.....
13	97	66	95	76	100	75	97	69	91	74	94	72	99	.....	89	69	92	67	92	69	.....	.....	87	70	88	69	99	68
14	98	68	97	77	104	76	100	76	93	76	98	72	101	77	94	72	91	71	98	77	.....	.....	91	72	91	72	92	70
15	101	72	99	76	103	74	101	74	95	73	100	76	104	78	95	72	91	70	102	75	.....	.....	93	71	89	73	97	69
16	101	70	103	72	102	69	101	70	95	68	100	68	101	72	97	72	94	68	104	71	.....	.....	95	70	91	74	96	69
17	100	71	102	73	101	68	105	70	95	70	99	69	100	71	98	72	98	67	102	74	.....	.....	95	73	93	72	96	68
18	105	73	105	74	104	67	102	80	98	72	102	69	103	67	102	72	100	67	103	74	.....	.....	96	75	95	75	96	78
19	96	70	105	75	104	67	95	75	96	71	97	70	96	68	96	75	87	70	94	71	.....	.....	86	71	86	75	95	72
20	94	69	94	75	78	64	94	70	85	68	91	63	85	60	97	67	91	56	95	57	.....	.....	87	66	87	65	95	62
21	93	65	97	69	92	65	97	65	87	63	88	62	91	56	90	68	84	50	93	62	.....	.....	85	63	81	62	.....	.....
22	97	57	100	69	99	62	93	70	94	60	96	58	96	58	94	59	90	47	97	62	.....	.....	88	65	86	61	.....	.....
23	92	68	91	75	106	62	90	72	98	74	103	59	94	72	94	61	95	55	92	71	.....	.....	85	68	89	65	93	58
24	85	69	100	75	93	71	93	71	88	70	90	70	88	64	84	69	84	69	80	67	.....	.....	79	67	80	69	94	64
25	92	69	99	75	92	67	94	72	92	71	96	68	94	66	84	70	85	58	86	68	.....	.....	79	71	84	67	93	70
26	93	69	99	75	96	67	90	71	93	70	93	67	98	64	90	71	93	64	94	71	.....	.....	88	69	87	71	94	66
27	99	69	91	68	98	66	97	68	96	69	101	67	98	63	93	72	92	67	87	68	.....	.....	82	67	90	72	95	70
28	100	67	99	68	100	66	98	71	97	74	99	69	100	65	97	74	94	66	96	70	.....	.....	91	70	91	73	99	71
29	100	74	97	73	98	69	98	73	97	72	102	70	99	67	100	72	98	70	98	73	.....	.....	93	74	93	72	102	70
30	102	70	100	72	101	67	100	75	99	73	103	67	100	65	95	74	97	68	96	73	.....	.....	91	65	95	70	96	70
31	91	72	100	73	103	68	100	73	103	70	106	69	93	67	96	73	96	65	99	71	.....	.....	92	71	89	70	98	72
Mns.	96.3	69.8	97.8	73.2	99.0	69.5	97.1	72.5	92.6	70.8	96.6	68.8	95.7	68.1[b]	92.7	70.5	91.3	64.8	95.0	70.0	.....	.....	88.6	69.8	88.3	69.9	94.5[d]	68.9[d]

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 7*—Continued.

Date.	Tennessee.				Arkansas.																Mississippi.					
	Kenton.		Memphis.		Bentonville.		Dardanelle.§§		El Dorado.§§		Fort Smith.		Hardy.		Little Rock.		Pine Bluff.§§		Texarkana.§§		Wynne.§§		Clarksdale.§§		Corinth.§§		Greenville.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	93	70	93	76	90	69	95	70	90	69	95	73	100	72	93	72	94	69	94	68	98	74	95	73	94	72	97	73
2....	91	71	90	74	93	68	95	73	86	71	94	72	95	71	89	72	89	72	80	70	94	74	88	74	90	72	86	73
3....	87	70	87	74	86	68	88	72	84	72	86	72	90	70	86	73	86	72	88	72	90	72	87	74	90	72	88	73
4....	90	68	89	74	91	72	93	73	91	72	92	75	95	70	90	72	92	70	93	70	90	70	93	70	96	70	94	71
5....	.....	.....	93	77	96	70	95	71	93	74	95	74	102	73	93	75	96	72	95	72	97	71	96	71	98	70	97	72
6....	93	70	95	78	99	70	96	75	96	73	99	69	100	75	96	78	99	76	97	72	100	71	100	78	100	76	101	77
7....	85	64	88	74	94	67	93	67	96	73	92	68	91	67	94	73	100	71	98	70	97	71	95	71	89	66	99	74
8....	89	60	84	71	99	73	97	71	98	75	100	75	83	67	91	76	100	77	99	72	93	73	92	71	96	64	97	75
9....	80	69	84	71	100	70	100	72	97	70	101	69	95	69	93	73	95	75	100	74	98	67	89	70	80	71	93	69
10....	88	70	84	72	90	68	85	69	77	73	86	71	84	68	79	69	80	69	91	76	79	72	89	73	94	70	92	74
11....	84	71	88	71	91	68	94	70	93	71	95	72	89	68	92	72	92	69	98	71	92	70	91	74	86	71	91	70
12....	82	67	77	69	76	64	84	75	90	72	83	66	85	69	84	69	86	73	95	75	77	68	83	74	77	68	90	72
13....	88	67	87	71	86	68	95	67	91	71	91	69	90	69	89	71	91	71	97	75	91	71	91	70	90	68	93	72
14....	90	71	89	75	91	72	96	71	92	73	95	74	91	72	90	74	93	74	96	73	91	74	94	74	92	70	94	75
15....	91	78	89	76	93	69	97	70	93	71	97	73	95	71	92	73	95	72	92	72	95	74	95	72	94	70	95	72
16....	92	70	90	77	94	68	101	70	94	72	99	70	98	72	94	74	96	71	100	73	95	73	96	71	96	71	96	74
17....	94	70	92[a]	78	94	67	101	70	96	72	100	73	101	72	94	74	97	73	98	72	97	73	97	73	96	72	98	73
18....	96	72	94	79	97	71	102	71	96	73	101	74	103	70	96	76	98	73	100	72	100	73	98	72	98	72	100	76
19....	91	72	92	78	92	70	99	71	97	71	98	75	95	74	98	67	101	73	102	69	100	73	99	74	102	74	101	76
20....	90	62	89	72	91	63	96	70	91	71	94	77	95	64	90	74	95	74	95	73	95	72	92	73	92	70	94	75
21....	85	59	85	70	88	60	93	67	92	67	92	72	90	62	87	73	94	73	96	68	92	70	91	70	90	68	95	71
22....	90	55	87	69	90	60	94	63	89	68	92	70	94	58	89	68	94	66	94	67	91	60	92	61	94	64	92	66
23....	91	59	88	71	88	67	97	63	94	68	94	70	97	69	91	70	93	66	97	69	94	63	89	68	88	66	91	69
24....	80	68	82	70	79	67	91	63	77	71	90	70	85	70	82	72	83	71	84	73	85	70	83	69	89	68	87	71
25....	85	66	82	73	84	68	91	70	84	70	90	71	79	70	83	70	81	70	95	72	86	71	83	71	91	70	84	74
26....	91	68	88	72	87	68	96	70	91	70	94	70	90	70	88	71	91	70	97	72	93	72	92	71	91	72	95	71
27....	95	70	89	73	83	67	97	69	93	73	92	70	92	68	89	73	92	72	99	72	92	72	93	72	90	72	95	74
28....	96	72	92	77	91	70	97	71	94	72	95	74	94	70	94	75	96	74	99	73	98	74	95	72	94	71	97	73
29....	98	69	94	73	92	71	98	69	94	73	98	72	97	70	96	76	97	74	100	73	99	73	96	74	94	74	96	75
30....	92	69	83	73	91	71	94	70	90	75	92	75	93	72	87	74	91	74	94	74	92	75	90	71	94	70	89	74
31....	97	70	90	76	92	70	96	71	92	71	96	74	95	68	93	74	96	72	99	70	94	73	95	73	92	73	96	73
Mns..	89.8[a]	67.9[a]	88.2	73.7	90.6	68.2	95.0	69.8	91.3	71.5	94.1	71.9	93.0	69.4	90.4	72.7	93.0	71.9	95.5	71.7	93.1	71.3	92.2	71.7	92.2	70.2	94.0	72.8

Date.	Mississippi.						Louisiana.																			
	Kosciusko.§§		Natchez.		Vicksburg.		Alexandria.§§		Baton Rouge.§§		Covington.§§		Lafayette.§§		Lake Charles.§§		Monroe.§§		New Orleans.		Robeline.§§		Schriever.§§		Shreveport.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	94	70	87	60	87	72	89	71	85	70	86	71	87	72	92	68	91	69	83	74	92	70	85	72	89	70
2.....	90	72	78	60	81	71	86	70	92	68	89	72	84	74	83	69	80	72	85	74	84	70	83	74	78	72
3.....	91	68	87	62	87	71	89	72	90	70	92	71	89	72	98	68	91	71	91	74	96	72	92	71	84	73
4.....	97	69	90	62	91	74	91	70	91	72	94	70	91	71	94	70	96	70	92	74	91	69	94	70	90	72
5.....	98	71	92	63	92	76	94	71	92	73	94	72	93	72	97	67	96	72	94	76	96	68	93	62	94	74
6.....	101	70	94	66	94	74	95	72	93	74	95	70	95	74	99	64	99	74	93	68	97	68	96	62	96	75
7.....	99	67	92	61	93	73	97	69	92	70	97	71	93	70	101	66	97	72	95	69	99	67	95	67	98	74
8.....	98	68	95	65	97	72	98	70	95	73	99	72	95	71	102	72	96	73	95	80	100	69	95	74	98	78
9.....	99	65	92	68	91	70	94	70	94	69	98	68	92	70	96	65	95	68	91	78	98	70	95	70	99	76
10.....	86	75	92	73	89	73	94	70	92	73	97	71	91	72	98	69	90	74	90	76	98	70	94	72	92	77
11.....	82	69	89	70	90	73	93	73	81	72	90	74	89	75	91	72	94	72	80	71	96	70	80	72	94	76
12.....	89	71	87	73	87	73	93	72	88	72	90	73	87	72	94	69	92	74	91	75	97	73	90	70	94	76
13.....	90	69	89	72	89	72	92	72	92	70	91	70	90	71	92	68	94	71	89	76	96	70	93	71	95	73
14.....	93	72	91	72	88	75	93	70	93	72	92	71	91	71	95	66	95	72	91	75	97	71	94	70	94	74
15.....	94	70	92	72	90	73	93	71	94	71	94	70	91	72	97	68	95	72	89	75	98	69	93	71	95	73
16.....	95	72	92	72	93	75	94	71	94	72	93	70	91	72	97	67	95	72	93	76	97	68	94	70	95	74
17.....	97	72	94	72	93	76	95	72	95	70	97	70	93	73	96	69	97	74	95	76	99	68	95	72	97	75
18.....	99	71	94	72	95	79	96	73	95	71	95	72	94	73	99	69	97	75	93	77	100	66	95	74	96	75
19.....	100	73	95	73	96	80	98	72	97	73	97	71	96	74	100	70	100	74	96	73	99	68	96	74	99	75
20.....	93	74	94	74	92	76	90	73	95	74	89	73	96	76	102	69	94	74	88	70	102	67	94	74	92	74
21.....	95	70	92	68	94	71	93	70	89	71	85	70	90	72	99	66	94	69	84	73	100	66	89	70	94	70
22.....	96	63	89	69	91	69	92	70	79	70	77	71	82	71	87	67	93	69	79	72	95	65	78	69	94	72
23.....	86	69	81	71	81	70	85	70	74	69	82	71	75	70	76	65	90	69	86	69	91	70	79	69	91	70
24.....	89	67	88	71	84	71	87	70	89	68	87	70	88	69	92	64	82	69	86	74	88	67	87	68	84	73
25.....	88	70	87	72	85	70	87	71	87	72	89	73	88	74	94	70	85	70	88	71	91	72	90	69	92	72
26.....	91	68	87	70	87	70	92	71	86	71	90	70	89	74	99	69	92	72	89	76	98	68	91	71	94	73
27.....	95	69	92	70	90	72	92	72	87	70	91	70	87	72	95	70	94	70	89	76	99	70	90	70	94	74
28.....	98	68	92	70	91	71	93	71	90	71	92	71	90	71	95	69	97	70	89	76	95	71	94	72	95	74
29.....	96	74	89	73	84	75	91	71	89	72	85	71	88	72	95	68	91	74	85	73	91	69	89	71	95	76
30.....	91	69	90	73	91	73	90	70	85	69	91	71	87	70	90	69	92	75	89	73	99	72	89	70	89	74
31.....	95	70	90	70	91	73	90	70	88	71	92	72	88	71	90	67	92	71	88	76	94	70	90	72	92	70
Mns.....	93.7	69.8	90.1	69.0	89.8	73.0	92.1	71.0	89.8	71.1	91.3	71.0	89.7	72.7	94.7	68.0	93.1	71.7	89.2	74.1	95.9	69.1	90.7	70.4	92.9	73.7

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 8, TEXAS AND RIO GRANDE VALLEY.

B. BUNNEMEYER, District Editor.

GENERAL SUMMARY.

July was generally warm and dry, with a large percentage of sunshine and few rainy days. The excess of temperature was greatest in the interior and northern portions of Texas, while deficiencies occurred in southeastern New Mexico and along the lower Texas coast. Temperature extremes were marked, especially in New Mexico, where high day temperatures during the first half of the month were followed by damaging frosts in the higher northern districts on the 27th or 28th.

Precipitation occurred in scattered local showers and was decidedly deficient, except in a few limited sections which had heavy local rains. The only considerable area receiving more than the normal amount was in northeast Texas. The deficiency was most pronounced in the south-central portion of Texas, where the average rainfall was less than one-fourth inch; and for the district as a whole the month of July goes on record as one of the driest months of that name. Because of the abundant precipitation in June the moisture was ample during the first half of the month, but at its close the drought had become serious in many localities. The effect of deficient moisture was intensified by excessive sunshine and high day temperatures. In Texas the average number of clear days is the greatest of record for that month, and the average number of rainy days the least. The number of days with 0.01 inch or more of precipitation averaged 7 in Colorado, 5 in New Mexico, and 2 in Texas. The greatest and least monthly amounts of precipitation were, respectively, in Colorado, 2.15 inches at Platoro and 0.95 inch at Manassa; in New Mexico, 3.86 inches at Windsors and a trace at Laguna; and in Texas, 10.95 inches at Greenville and a trace at 10 stations, while at 13 others there was no precipitation. Excessive rains of 2.50 inches or more in 24 consecutive hours occurred at 6 stations in Texas, the heaviest reported being 5.70 at Greenville on the 3d.

The prevailing winds were from the southwest in the western portion of the district, from the south in the middle portion, and from the southeast along the Texas coast. The highest wind velocity reported was 64 miles per hour at Roswell, N. Mex., on the 14th.

TEMPERATURE.

The monthly mean temperature was 0.8° above the normal in Colorado, 0.2° below in New Mexico, and 1.2° above in Texas. High day temperatures were the rule up to the last decade, with the highest for the month generally occurring between the 5th and 11th, except in south Texas, where the 20th was the hottest day. Late on the 20th, however, severe wind and electrical storms occurred, which caused a sudden drop in temperature; and at several south Texas stations both the highest and lowest temperatures of the month were recorded on this date. The last decade was cool in the western portion of the district, with lowest temperatures generally occurring between the 26th and 29th. The nights as a rule were cool and the average daily range of temperature large, varying from 9° on the upper Texas coast to 39° in portions of New Mexico.

The highest and lowest temperatures reported were, respectively, in Colorado, 98° at Saguache on the 6th and 24° at Hermit on the 29th; in New Mexico, 109° at Carlsbad and Richland on the 11th and 32° at Red River Canyon on the 25th and at Tres Piedras on the 27th; and in Texas, 110° at Denton on the 10th, at Jewett on the 20th, and at Graham on the 23d and 50° at Stamford on the 26th. The local monthly means ranged from 51.8° to 65.4° in Colorado, from 56.8° to 81.8° in New Mexico, and from 73.0° to 88.4° in Texas.

PRECIPITATION.

The precipitation was decidedly deficient throughout the Rio Grande watershed except in its extreme upper portion, which received a slight excess. The average for the watershed was 1.21 inches, which is 0.90 inch less than the normal and less than half the total for the preceding month, although normally the rainfall for July is double that for June in this watershed.

The Rio Pecos watershed showed a general and marked deficiency of precipitation, the average amounting to only 0.93 inch, which is 2.44 inches less than the normal.

The precipitation over the Texas watersheds was also decidedly deficient, except over the Sabine drainage area which received heavy to excessive rains over its upper portion, giving an excess for the watershed as a whole of 1 05 inches. The other Texas watersheds showed deficiencies that ranged from a minimum of 1.33 inches for the Trinity to a maximum of 3.00 inches for the Neches. Exceptionally dry weather prevailed over the San Antonio watershed, and the percentage of deficiency was greatest over that drainage basin. The following are the average monthly amounts in inches and hundredths for the various Texas watersheds: Nueces, 0 68; San Antonio, 0.14; Guadalupe, 0 44; Lavaca, 1 00; Colorado, 0 96; Brazos, 0 81; Trinity, 1.93; Neches,1 42; Sabine, 4.74; and coastal plains, 0 94.

RIVER CONDITIONS.

High water continued in the Nueces River and its tributaries during the first decade from the excessive rains during the last few days of June. The East Fork of the Trinity and the extreme upper Sabine were at flood stage for several days following the excessive rains in Hunt and adjoining counties between the 1st and 4th. These rains covered only limited areas and were not

sufficient to cause overflows in the main trunks of these streams, although the rises in their middle and lower portions amounted to from 15 to 20 feet between the 6th and 20th. Slight rises occurred in the upper Trinity between the 25th and 30th, and in the Brazos and Colorado during the first decade. The Guadalupe was at low water mark throughout the month.

EXCESSIVE RAINS IN HUNT COUNTY, TEX.

Between 7 a. m. July 1 and 7 a. m. July 4, a series of heavy local showers occurred over a limited area in northeast Texas which caused much damage in that section. The morning weather map of the 2d showed a shallow barometric depression of small diameter over northern Texas, with lowest barometer reading 29 88 inches at Fort Worth, which was attended by showers in that section. The total rainfall from these showers at Greenville, Hunt County, amounted to 10 55 inches, but at surrounding stations it was much lighter. The amount at Bonham, Fannin County, during the same period, was 3 90 inches; at McKinney, Collin County, 2 30 inches; and at Kaufman, Kaufman County, 3 65 inches. From the havoc wrought it seems that the rainfall west or southwest of Greenville must have been in the nature of a cloudburst on the morning of the 2d. Creeks and streams and all lowlands in that section were flooded. Levees were broken and many acres of the richest agricultural lands in the State were under water. Bridges were destroyed, roadbeds badly washed, and traffic and communication interrupted for several days, and much other damage resulted from the water. The loss in Hunt and Rockwall Counties is estimated at over $1,000,000.

MOCK SUNS.

By HOWARD H. MARTIN, Assistant Observer, Fort Worth, Tex.

The phenomenon of "mock suns" or "sun dogs," although rare in Texas, was observed on the morning of July 24, under favorable conditions.

At sunrise, 5 37 a. m., the sun was hidden by a bank of dense alto-stratus clouds which gradually merged into thinner cirro-stratus. At 6 10 a. m., there appeared a well-defined halo of 22° radius, with a brilliant mock sun at each end of its horizontal diameter and at an altitude of perhaps 10°, each surrounded by a faint corona.

Above these mock suns, and to the outside, appeared fainter splotches of light, indicating the presence of another halo. The density of the attendant alto-stratus cloud was, however, too great to permit the observation of this halo.

The presence of halos and mock suns is generally considered a forerunner of precipitation, and in this case particularly, was the theory borne out. A sharp electrical storm with excessive rainfall occurred within 6 hours after the disappearance of the phenomenon. Accompanying the storm was a marked drop in temperature, the fall, though temporary, amounting to 38° in less than 3 hours.

TABLE 1.—*Climatological data for July, 1913. District No. 8, Texas and Rio Grande Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Colorado.																				
Blanca	Costilla	7,865	4	62.9	.....	87a	7	33a	28	43a	1.46	.....	0.62	0	7	20a	7a	3a	w.	Lewis F. Botens.
Cumbres	Conejos	10,015	6	.....	.....	.....	.....	.....	.....	.....	1.27	.....	0.44	0	9	12	12	7	sw.	Mrs. Ida M. Lively.
Garnett	Costilla	7,576	20	61.8	0.0	90	7	35	28	46	1.34	+ 0.17	1.14	0	3	12	15	4	sw.	Charles Speiser.
Hermit	Hinsdale	9,843	6	51.8	.....	78	5	24	29	46	1.92	.....	0.43	0	7	17	7	7	.....	Miss Marion Mason.
La Veta Pass	Costilla	9,000	3	.....	.....	.....	.....	.....	.....	.....	1.41	.....	0.43	0	6	9	16	6	w.	Clara M. Wright.
Manassa	Conejos	7,700	7	64.0	.....	89	5	36	27†	46	0.95	.....	0.53	0	5	12	9	10	sw.	J. B. Chapman.
Platoro	do	9,675	6	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.48	0	12	15	9	7	w.	Walter R. Hook.
Saguache	Saguache	7,740	21	65.4	+ 1.1	98b	6	38b	28†	49b	2.03	+ 0.46	0.53	0	7	9a	4a	17a	sw.	Eugene Williams.
San Luis	Costilla	7,794	22	61.9	+ 0.9	85	6†	34	28	47	2.00	− 0.34	1.47	0	3	20	9	2	sw.	P. B. Albright.
Wagon Wheel Gap Experiment Station.	Mineral	9,235	14	56.2	+ 1.2	81	5	34	28	39	1.83	− 0.32	0.65	0	14	7	19	5	.....	U. S. Weather Bureau.
New Mexico.																				
Agricultural College	Dona Ana	3,863	52	78.7	− 2.1	104	11	53	24	39	1.27	− 0.54	0.62	0	4	23	6	2	sw.	N. Mex. Agricultural College.
Alamogordo (near)	Otero	4,338	16	81.2	+ 1.6	107	12†	55	25	44	0.01	− 1.59	0.01	0	1	16	10	5	s.	Edward Le Breton.
Alamogordo	do	4,320	4	79.4	.....	102	11	57	24	38	0.28	.....	0.28	0	1	29	0	2	s.	Agent E. P. & S. W. R. R.
Alamos Ranch	Sandoval	7,800	3	.....	.....	.....	.....	.....	.....	.....	1.22	.....	0.45	0	10	31	0	0	sw.	H. H. Brook.
Albuquerque	Bernalillo	5,000	37	.....	.....	.....	.....	.....	.....	.....	0.46	− 0.75	0.34	0	4	20	11	0	w.	Pitt Ross, C. E.
Ancho	Lincoln	6,112	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Anchor Mine	Taos	10,600	2	.....	.....	.....	.....	.....	.....	.....	2.35	.....	0.45	0	6	2	14	15	w.	Charles H. Brigham.
Artesia	Eddy	3,350	5	79.2	.....	108	11	55	10	45	0.10	.....	0.10	0	1	29	1	1	se.	Will Benson, C. E.
Aspen Grove Ranch	Rio Arriba	9,000	4	.....	.....	.....	.....	.....	.....	.....	1.28	.....	0.36	0	9	8	22	1	.....	Junius D. Maupin.
Batemans Ranch	do	8,900	4	.....	.....	.....	.....	.....	.....	.....	1.87	.....	0.80	0	6	16	15	0	w.	John W. Bateman.
Berino	Dona Ana	3,788	2	.....	.....	.....	.....	.....	.....	.....	1.00	.....	0.66	0	2	.....	.....	.....	.....	J. C. Rishaberger.
Bluewater	Valencia	6,732	11	64.4	− 4.9	92	4†	33	28	55	2.52	+ 0.32	1.75	0	6	12	16	3	sw.	Bluewater Development Co.
Boaz	Chaves	4,154	4	78.2	.....	104	13†	50	31	44	0.12	.....	0.12	0	1	25	6	0	se.	William Horner.
Capitan	Lincoln	6,348	4	.....	.....	.....	.....	.....	.....	.....	1.10	.....	0.85	0	2	1	28	2	w.	Agent E. P. & S. W. R. R.
Carlsbad	Eddy	3,120	18	80.8	+ 0.5	109	11	60	10†	42	0.70	− 2.26	0.45	0	3	23	6	2	se.	U. S. Reclamation Service.
Carrizozo	Lincoln	5,429	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Cerrillos (near)	Santa Fe	5,700	1	73.8	.....	99	7†	44	27	44	0.82	.....	0.34	0	7	12	18	1	s.	Irving C. Sweet.
Chama	Rio Arriba	7,851	15	62.4	− 2.3	89	5†	34	27†	46	1.78	− 0.73	0.70	0	6	21	10	0	sw.	Frank C. Johnson.
Cloudcroft	Otero	8,650	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Corona	Lincoln	6,666	4	68.0	.....	92	5†	46	22	36	0.40	.....	0.40	0	1	6	23	2	sw.	Do.
Coyote	do	5,800	4	.....	.....	.....	.....	.....	.....	.....	0.11	.....	0.04	0	3	22	9	0	sw.	Do.
Cundiyo	Santa Fe	6,889	4	.....	.....	.....	.....	.....	.....	.....	0.78	.....	0.42	0	3	14	14	3	w.	Juan Vijil.
Demonstration Farm	San Miguel	6,800	4	.....	.....	.....	.....	.....	.....	.....	0.73	.....	0.22	0	4	.....	.....	.....	.....	C. C. Clayton.
Duran	Torrance	6,272	4	73.2	.....	96	10†	49	24	36	0.65	.....	0.55	0	2	23	1	7	.....	Agent E. P. & S. W. R. R.
Elida	Roosevelt	4,345	1	.....	.....	.....	.....	.....	.....	.....	0.38	.....	0.38	0	1	.....	.....	.....	.....	A. J. Evans.
Escondido	Otero	4,014	4	.....	.....	.....	.....	.....	.....	.....	0.60	.....	0.30	0	3	23	0	8	se.	Agent E. P. & S. W. R. R.
Espanola	Rio Arriba	5,590	15	72.4	+ 0.5	100	14	41	28	46	0.38	− 1.16	0.10	0	5	24	7	0	s.	Mrs. Ella F. McBride.
Estancia	Torrance	6,140	10	70.3[1]	.....	95[1]	11	45[1]	17	47[1]	1.21	− 2.19	0.74	0	6	14	17	0	se.	Geo. H. Van Stone.
Fort Stanton	Lincoln	6,231	36	69.0	− 0.1	100	11	43	26	46	2.07	− 0.90	0.60	0	7	21	10	0	se.	U. S. Sanitarium.
Fort Sumner	Guadalupe	3,960	10	76.2	.....	104	11	54	28	45	0.36	− 1.91	0.24	0	5	22	9	0	se.	Peter Yocky.
Gallinas	Lincoln	6,635	4	.....	.....	.....	.....	.....	.....	.....	0.15	.....	0.10	0	2	5	14	12	sw.	Agent E. P. & S. W. R. R.
Gallinas Planting Sta	San Miguel	7,500	6	63.9	.....	88	11†	42	28	37	2.24	.....	0.73	0	10	13	16	2	sw.	U. S. Forest Service.
Glorieta Ranch	Socorro	6,300	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. M. Crossman.
Harveys Upper Ranch	San Miguel	9,400	4	60.6	.....	84	5	35	28	37	2.33	.....	0.65	0	11	13	18	0	w.	R. B. Schoonmaker.
Hobbs	Eddy	.....	...	79.8	.....	106	11	59	16†	38	1.48	.....	1.00	0	4	23	6	2	se.	E. H. Byers.
Hondo Reservoir	Chaves	3,904	4	77.8	.....	106	11	54	27	44	0.50	.....	0.27	0	5	22	9	0	se.	U. S. Reclamation Service.
Jemez Springs	Sandoval	6,100	3	70.9	.....	93	13	48	29	36	0.66	.....	0.23	0	7	9	13	9	sw.	Mrs. Linus L. Shields.
Knowles (near)	Eddy	4,300	3	78.1	.....	104	11	57	26	41	1.28	.....	1.11	0	4	23	7	1	se.	J. W. Mosley.
Laguna	Valencia	5,840	10	77.6	.....	103	9	54	2†	42	T.	− 1.95	T.	0	0	.....	.....	.....	.....	Gus Weiss.
Lagunita	Guadalupe	4,500	8	76.0	.....	101	11	51	31	38	0.56	.....	0.38	0	3	22	8	1	s.	P. A. Turnbull.
Lake Valley	Sierra	5,412	8	.....	.....	105	11†	.....	.....	.....	3.37	.....	1.47	0	8	11	19	1	e.	William P. Keil.
Lakewood (near)	Eddy	3,170	1	80.4	.....	102	7	60	3†	38	0.34	.....	0.34	0	1	27	3	1	se.	Mrs. J. K. Boyd.
Lanark	Dona Ana	4,156	14	.....	.....	.....	.....	.....	.....	.....	1.25	− 0.36	0.80	0	2	0	31	0	w.	Agent So. Pac. R. R.
Las Vegas	San Miguel	6,385	26	68.5	− 0.5	94	13	42	27	41	0.47	− 3.35	0.36	0	3	21	6	4	sw.	New Mexico Normal Univ.
Los Lunas (near)	Valencia	4,900	24	75.7	− 1.2	100	9	43	28	47	0.08	− 1.01	0.06	0	2	10	21	0	.....	Richard Pohl.
Magdalena	Socorro	6,557	10	72.3	.....	96	12	50	28	38	0.85	− 1.96	0.55	0	4	6	25	0	sw.	William Pender.
Mescalero	Otero	6,627	2	65.8	.....	91	11	42	23	38	1.04	.....	0.34	0	11	12	12	7	sw.	Rev. R. H. Harper.
Mineral Hill	San Miguel	7,050	8	.....	.....	.....	.....	.....	.....	.....	1.87	.....	0.85	0	3	2	27	2	sw.	W. M. Nelson.
Monterey	Otero	4,436	4	.....	.....	.....	.....	.....	.....	.....	0.36	.....	0.16	0	3	13	17	1	s.	Agent E. P. & S. W. R. R.
Mountainair	Torrance	6,547	11	71.2	+ 1.4	99	12†	40	29	50	1.33	− 0.98	0.88	0	4	23	7	1	sw.	Miss Julia Hill.
Mountain Park	Otero	.....	1	.....	.....	.....	.....	.....	.....	.....	1.42	.....	0.24	0	10	20	8	3	e.	Chas. E. Beasley.
Newman	do	3,989	4	.....	.....	.....	.....	.....	.....	.....	0.77	.....	0.77	0	1	26	1	4	w.	Agent E. P. & S. W. R. R.
Nogal (near)	Lincoln	8,000	...	.....	.....	.....	.....	.....	.....	.....	1.21	.....	0.38	0	8	14	16	1	w.	H. E. Kellar.
Noria	Dona Ana	4,114	4	.....	.....	.....	.....	.....	.....	.....	1.58	.....	1.22	0	4	21	1	9	w.	Agent E. P. & S. W. R. R.
Orogrande	Otero	4,171	4	.....	.....	.....	.....	.....	.....	.....	1.00	.....	0.80	0	2	9	20	2	.....	Do.
Oscura	Lincoln	5,016	4	.....	.....	.....	.....	.....	.....	.....	2.43	.....	0.73	0	8	.....	.....	.....	.....	Eugene F. Jones.
Otis	Eddy	3,100	4	.....	.....	.....	.....	.....	.....	.....	0.96	.....	0.54	0	4	25	1	5	se.	A. M. Hove.
Pastura	Guadalupe	5,285	4	.....	.....	.....	.....	.....	.....	.....	0.41	.....	0.21	0	3	9	17	5	sw.	Agent E. P. & S. W. R. R.
Plainview (near)	Chaves	4,300	2	78.2	.....	105	11	57	28	41	2.37	.....	1.00	0	5	23	6	2	se.	L. P. Adair.
Red River Canyon	Taos	9,856	6	58.8	.....	86	16	32	25	51	2.60	.....	0.80	0	8	9	16	6	e.	Mrs. L. R. Penn.
Richland	Chaves	.....	...	76.7	.....	109	11	52	16	49	0.58	.....	0.58	0	1	13	18	0	se.	K. H. Embree.
Rincon	Dona Ana	4,030	19	78.7	− 0.5	105	11	50	24	45	0.55	− 1.52	0.30	0	3	3	23	5	sw.	Charles H. Raitt.
Rio Grande Dam	Sierra	4,265	23	81.8	+ 3.2	108	11	60	22†	38	1.04	− 1.06	0.34	0	5	6	22	3	w.	U. S. Reclamation Service.
Rio Grande Industrial School.	Bernalillo	5,000	2	73.4	.....	98	8†	44	28	44	0.55	.....	0.51	0	2	19	9	3	sw.	Rev. A. C. Heyman.
Rosedale	Socorro	6,910	8	68.4	.....	92	12	45	22	35	1.51	.....	0.45	0	11	14	15	2	w.	Mrs. J. J. MacInness.
Roswell	Chaves	3,578	19	78.4	− 0.4	103	11	58	27	38	0.82	− 2.64	0.41	0	4	16	14	1	s.	U. S. Weather Bureau.
San Marcial	Socorro	4,439	16	77.8	+ 0.4	104	14†	47	21	53	0.31	− 1.37	0.15	0	3	24	5	2	sw.	Agent A., T. & S. F. R. R.
San Rafael	Valencia	6,509	16	73.4	+ 1.6	107	2	42	27†	54	0.46	− 1.60	0.20	0	4	22	9	0	sw.	Dr. C. M. Grover.
Santa Fe	Santa Fe	7,013	40	69.6	+ 0.9	90	11	52	30	30	1.12	− 1.59	0.51	0	9	9	21	1	se.	Section Center.
Santa Fe Canyon	do	8,000	3	.....	.....	.....	.....	.....	.....	.....	1.13	.....	0.40	0	6	15	14	2	se.	Mrs. E. M. Gregory.
Santa Rosa	Guadalupe	4,624	12	77.1	.....	103	11	54	24†	40	0.32	− 2.16	0.13	0	6	12	10	9	sw.	H. V. B. Smith.
Senorita (near)	Sandoval	7,500	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	James Curry.
Socorro	Socorro	4,600	21	77.6	+ 0.1	103	5†	51	25	42	0.79	− 0.85	0.32	0	5	30	1	0	se.	J. J. Leeson.
Southfork	Taos	8,405	...	.....	.....	.....	.....	.....	.....	.....	2.91	.....	0.40	0	13	18	13	0	se.	Frank Hamm, jr.
Stanley	Santa Fe	6,317	4	69.4	.....	98	11†	37	28	48	0.14	.....	0.14	0	1	8	9	14	w.	D. C. Kinsell.
Tajique (near)	Torrance	9,820	3	60.8	.....	77	11†	42	30	30	1.74	.....	0.52	0	10	19	12	0	.....	A. Rea.
Taos	Taos	6,983	18	67.8	− 0.8	92	14	42	28	42	1.02	− 0.70	0.42	0	9	16	15	0	w.	Alexander Gusdorf.
Taos Canyon	do	8,959	4	.....	.....	.....	.....	.....	.....	.....	2.02	.....	0.44	0	11	15	9	7	.....	L. Martinez, jr.
Tecolote	Lincoln	6,539	4	71.4	.....	90	4†	54	22	30	0.40	.....	0.40	0	1	14	5	12	e.	Agent E. P. & S. W. R. R.
Three Rivers	Otero	4,559	4	.....	.....	.....	.....	.....	.....	.....	0.06	.....	0.06	0	1	15	8	8	sw.	Do.
Tijeras Canyon	Bernalillo	6,214	3	.....	.....	.....	.....	.....	.....	.....	1.86	.....	1.04	0	7	21	9	1	sw.	U. S. Forest Service.
Torrance	Torrance	6,433	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Tres Piedras	Taos	8,076	10	63.0	.....	90	5	32	27	47	2.21	− 0.53	0.53	0	6	10	11	10	sw.	U. S. Forest Service.
Truchas	Rio Arriba	7,935	4	63.8	.....	86	7	43	29	33	1.84	.....	0.53	0	10	14	6	11	se.	Miss T. Esquibel.
Tularosa	Otero	4,436	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Irby L. Fairless.

TABLE 1.—*Climatological data for July, 1913. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New Mexico—Contd.																				
Vaughn	Guadalupe	5,952	4								0.10		0.05	0	2	16	15	0		Agent E. P. & S. W. R. R.
Virsylvia	Taos	7,500	3	69.6		92	30	49	19	36	0.50		0.20	0	7	23	7	1	s.	Dr. I. N. Woodman.
Willard	Torrance	6,086	1	72.1		106	1	39	28	55	0.95		0.51	0	5	18	8	5	sw.	Dr. V. S. Cheyney.
Winsors	San Miguel	8,200	17	56.8	− 1.7	82	5	33	28	40	3.86	− 0.52	0.74	0	17	11	19	1	sw.	James F. Matty.
Texas.																				
Abilene	Taylor	1,738	28	84.3	+ 2.1	102	10	66	21	30	0.72	− 1.68	0.28	0	5	17	13	1	s.	U. S. Weather Bureau.
Albany	Shackelford	1,429	19	83.2	− 0.1	108	10	61	22†	41	0.70	− 2.25	0.41	0	3	28	3	0		N. L. Bartholomew.
Alice	Jim Wells	209	2	83.5		101	9	65	12	33	0.60		0.35	0	2	26	1	4	se.	R. M. Boerum.
Alpine	Brewster	4,482	3								1.80		1.60	0	2	17	14	0	s.	H. B. Cowles.
Alvin	Brazoria	49	15	83.4		102	20	68	15†	33	2.16	− 4.77	1.56	0	2	8	20	3	s.	Alvin Japanese Nursery.
Anahuac	Chambers	23	4								1.19		0.78	0	6					Lone Star Canal Co.
Angleton	Brazoria			81.4		100	20	65	19	30	1.57		0.62	0	5	10	6	15	s.	N. C. Winters.
Antelope	Jack		2								0.17		0.17	0	1	27	4	0		Paul Rudolph.
Aspermont	Stonewall		2								1.45		1.17	0	2	25	3	3	se.	Bryant Link Co.
Austin	Travis	593	57	84.0	+ 0.3	100	20	70	14	28	0.01	− 2.39	0.01	0	1	21	9	1	s.	A. Deussen.
Ballinger	Runnels	1,637	17	84.6	+ 2.5	107	31	66	7†	40	0.43	− 2.61	0.25	0	3	7[a]	23[a]	0[a]	s.	E. M. Eubank.
Barstow	Ward	2,573	6	82.4		105	11	61	26	34	0.20		0.20	0	1	22	8	1	s.	F. P. Ingerson.
Bay City	Matagorda	53	3	82.2		94	20	73	20	21	2.53		1.80	0	3	12	12	7	s.	E. C. Quereau.
Beaumont	Jefferson	29	12	85.2	+ 2.3	100	7	71	30†	27	1.71	− 3.25	0.75	0	7	16	0	15	se.	John Bender.
Beeville	Bee	225	17	82.4	− 1.4	103	20†	64	30	38	0.12	− 3.72	0.06	0	3	26	3	2	se.	Geo. A. Faupel.
Big Spring	Howard	2,396	15	82.7	+ 0.1	105	11	62	26	36	0.97	− 2.02	0.65	0	2	20	11	0	s.	B. Reagan.
Blanco	Blanco	1,350	17	84.4	+ 2.7	103	20	66	22†	36	0.06	− 3.47	0.06	0	1	27	4	0	s.	R. C. Crist.
Boerne	Kendall	1,412	21	80.9	+ 0.2	104	25	60	8	40	0.33	− 3.34	0.28	0	2	26	5	0	s.	F. W. Schweppe.
Booth	Fort Bend	81	12								0.25	− 4.78	0.15	0	2	30	0	1	se.	T. R. Booth.
Bowie	Montague	1,113	18	87.1	+ 3.8	107	23	67	26	33	0.85	− 1.54	0.85	0	1	20	7	4	s.	Craig Anderson.
Brady	McCulloch	1,500	12																	Prof. J. O. Wallace.
Brazoria	Brazoria	25	24	83.6	+ 2.1	104	20	70	6†	32	0.06	− 5.25	0.06	0	1	31	0	0	s.	Mrs. M. A. Stevens.
Brazos	Palo Pinto	801	4								1.35		1.10	0	3	19	12	0	s.	Robt. E. Boyett.
Brenham	Washington	350	28	84.7	+ 1.4	102	20	71	18	26	1.05	− 2.06	0.56	0	3	26	5	0	s.	Mrs. B. F. Sloan.
Bridgeport	Wise	754	4								1.25		0.82	0	2	22	8	1	s.	Claude Strange.
Brighton	Neuces	12	20	84.6[m]	+ 1.7	98[m]	31	72[m]	7	23[m]	T.	− 1.29	T.	0	0	18[m]	0[m]	0[m]	se.	G. H. Ritter.
Brownsville	Cameron	38	49	81.4[d]	− 2.4	96	20	69	10	25[h]	0.28	− 1.60	0.24	0	3				se.	U. S. Weather Bureau.
Brownwood	Brown	1,342	21	84.6	+ 1.2	105	10†	66	21†	37	0.80	− 1.30	0.68	0	3	20	9	2	s.	Mrs. Pearl Smith.
Buena Vista	Pecos		1								0.25		0.25	0	1	30	1	0		W. H. Denis.
Cameron	Milam		5																	J. E. Watts.
Carmona	Polk	330	5	82.8		103	20	66	16†	34	1.81		1.26	0	4	12	19	0	s.	M. S. Spitler.
Carrizo Springs	Dimmit		1	85.6		101	14†	70	6†	30	0.45		0.25	0	2	21	0	10	se.	M. E. Cook.
Claytonville	Fisher	2,100	18	83.4	+ 2.4	104	12†	62	26	36	2.34	− 1.34	1.12	0	3	30	0	1	se.	Wm. Lanius.
Cleburne	Johnson	758	8																	W. S. Ownsby.
Clifton	Bosque	671	2								1.81		0.81	0	5	14	16	1	s.	R. M. Jones.
Coleman	Coleman	1,710	19	86.8	+ 5.8	106	31	63	16	36	T.	− 3.14	T.	0	0	18	13	0	s.	J. E. Stevens.
Collegeport	Matagorda		1	82.4		100	10	68	6†	30						1	30	0	s.	H. A. Clapp.
College Station	Brazos	308	23	86.2	+ 2.8	106	23	67	18	36	0.06	− 2.63	0.04	0	3	9	8	14	s.	Prof. G. S. Fraps.
Colorado	Mitchell	2,066	19	80.8	− 1.8	103	23	62	15	35	2.69	− 0.47	1.48	0	4				s.	R. M. Webb.
Columbus	Colorado	206	9								1.90		1.90	0	1	28	3	0	s.	Mrs. Sophie Bridge.
Comanche	Comanche	1,358	7	85.4		107	10	64	26	33	1.02		0.85	0	4	7	20	4	se.	R. V. Nabers.
Corpus Christi	Nueces	20	26	81.4	− 1.3	94	20	72	20	22	1.18	− 0.48	1.07	0	3	19	12	0	se.	U. S. Weather Bureau.
Corsicana	Navarro	445	24	84.9	+ 1.0	99	8†	69	21	28	2.37	− 0.28	1.53	0	3	23	3	5	s.	D. H. Winn.
Cotulla	La Salle	425	6								0.00		0.00	0	0					Holland Agricultural Co.
Crockett	Houston	350	9	86.4		108	20	67	21	34	0.31		0.21	0	3	23	6	2	s.	A. M. Rencher.
Cuero	De Witt	177	23	84.7	− 0.1	101	20	69	17	30	1.08	− 1.59	0.75	0	7	25	1	5	s.	H. R. Frobese.
Dallas	Dallas	466	24	85.5	+ 1.6	106	10	69	3†	32	2.48	− 0.92	0.89	0	4	22	1	8	s.	G. A. Eisenlohr.
Danevang	Wharton	145	17	86.8	+ 3.6	105	20	71	6†	31	1.46	− 3.44	0.67	0	4	26	3	2	se.	H. P. Hermansen.
Del Rio	Valverde	952	7	84.5	− 0.2	99	20	66	26	27	1.52	− 0.70	1.52	0	1	22	6	3	se.	U. S. Weather Bureau.
Denton	Denton	621		86.2		110	10	68	21†	37	2.55		1.70	0	6	23	3	5	sw.	T. W. Buell.
Devine	Medina	653	3	88.4		105	16†	70	21	33	0.25		0.25	0	1	28	3	0	se.	M. A. Keller.
Dialville	Cherokee	575	10	84.1	+ 2.5	102	19	66	21	30	1.05		0.55	0	2	15	13	3	s.	J. M. B. McKnight.
Dilley	Frio	569	3								0.50		0.50	0	1					John W. Miller.
Dublin	Erath	1,466	17	85.6	+ 3.8	107	10	68	21†	34	0.35	− 2.29	0.19	0	3	19	11	1	s.	Jno. O. Shafer.
Duval	Travis	820	24	85.2	+ 0.8	101	10†	71	16†	27	0.09	− 2.55	0.09	0	1	23	4	4	se.	J. C. Edgar.
Eagle Pass	Maverick	800	36	87.2	− 0.6	105	20	70	26	31	0.11	− 1.65	0.10	0	2	22	8	1	se.	Charles Tarver.
Eastland	Eastland	1,420	6	83.0		105	23†	58	27	42	T.		T.	0	0	26	4	1	s.	James A. Beard.
Edna	Jackson	71	4								1.31		1.10	0	2					E. L. Faires.
El Paso	El Paso	3,762	34	81.5	+ 1.0	104	11	61	21	32	1.13	− 1.00	0.60	0	5	19	10	2	e.	U. S. Weather Bureau.
Encinal	La Salle	558	5																	Walter Pettit.
Fairland	Burnet	1,000	24	84.0	+ 1.3	105	20†	61	20	44	0.43	− 1.46	0.22	0	2	17	14	0	s.	R. L. Bush.
Falfurrias	Brooks		5	83.6		101	23†	66	10†	32	1.10		0.73	0	3	27	4	0	se.	W. A. Gardner.
Flatonia	Fayette	465	5	85.8		108	20	68	16	35	0.25		0.17	0	2	20	10	1	s.	Fred W. Laux.
Flint	Smith	483	3	85.0		106	19	68	23	34	1.12		1.02	0	2	21	7	3	sw.	F. C. C. Carter.
Fort Clark	Kinney	1,050	42	83.5	− 0.6	98	13†	68	28	28	1.50	− 0.46	1.50	0	1	29	1	1	se.	Post Hospital.
Fort Davis	Jeff Davis	5,000	34								1.30	− 2.14	0.52	0	4					C. H. Bird.
Fort McIntosh	Webb	460	45	87.2	+ 0.1	104	20	68	9	35	0.00	− 1.94	0.00	0	0	24	6	1	se.	Post Hospital.
Fort Stockton	Pecos	3,050	16	81.8	+ 0.9	106	11	61	29	36	T.	− 2.25	T.	0	0	3	28	0	se.	H. H. Butz.
Fort Worth	Tarrant	670	18	85.1	+ 1.4	106	10	65	24	38	4.36	+ 1.32	2.50	0	6	16	12	3	s.	U. S. Weather Bureau.
Fowlerton	La Salle			87.0		106	20	70	16	35	0.08		0.08	0	1					Leo S. Karren.
Fredericksburg	Gillespie	1,742	24	81.2	− 2.5	98	20†	62	24	34	0.15	− 2.31	0.15	0	1	15	13	3	s.	Arthur Striegler.
Gail	Borden		1	80.7		100	16	62	28	36	1.65		1.15	0	3	23	1	7	s.	J. D. Brown.
Gainesville	Cooke	738	23	85.9	+ 4.1	105	8†	65	22	31	3.27	− 1.07	1.95	0	3					J. L. Hickson.
Galveston	Galveston	69	42	83.2	+ 0.2	99	20	75	20	24	1.48	− 2.50	1.17	0	6	25	5	1	s.	U. S. Weather Bureau.
Garden City	Glasscock		1								0.26		0.26	0	1	27	3	1	se.	C. W. Cunningham.
Gatesville	Coryell	795	9	85.6		104	23	70	26	30	0.30		0.25	0	2	27	3	1		John Ryan.
Georgetown	Williamson	750	18	85.4	+ 2.2	107	20	68	18	35	0.00	− 2.99	0.00	0	0	30	1	0	s.	Prof. R. F. Young.
Goliad	Goliad	164	1								0.36		0.24	0	2					W. B. Campbell.
Gonzales	Gonzales	299	8								0.66		0.38	0	3	22	6	3	s.	J. M. Johnson.
Goree	Knox		1								2.07		1.52	0	2	14	17	0	s.	R. L. Gaines.
Gorham	McLennan	444	4								T.		T.	0	0	23	8	0	s.	John Gorham.
Graham	Young	1,040	14	87.6	+ 3.3	110	23	64	31	43	0.37	− 2.44	0.37	0	1	20	10	1	s.	C. W. Johnson.
Grand Falls	Ward		3								T.		T.	0	0	8	23	0		W. A. White.
Grand Saline	Van Zandt	399	3								3.15		1.60	0	3	25	3	3	se.	Jas. Kirk.
Grapevine	Tarrant	670	23	85.4	+ 2.4	109	10	67	25†	36	4.66	+ 1.33	1.59	0	5	15[d]	6[d]	6[d]	s.	W. J. Crowley.
Greenville	Hunt	550	13	84.4	+ 0.7	103	19	68	2	31	10.95	+ 6.73	5.70	0	5	19	0	12	s.	Mrs. L. A. Regan.
Hallettsville	Lavaca	235	21	86.2	+ 2.2	102	8†	70	18	30	0.70	− 2.28	0.22	0	4	22	4	5	s.	Dr. J. E. Lay.
Hamlin	Jones	1,685	2								3.35		2.60	0	2					W. S. Carruthers.
Harlingen	Cameron	37	2	83.7		102	22	69	9†	33	0.61		0.33	0	4	22	9	0	se.	Lindsay Waters.
Harper	Gillespie		2								0.24		0.24	0	1	26	0	5		D. C. Barker.
Haskell	Haskell	1,553	18	85.4	+ 0.8	105	11	66	26†	31	1.78	− 0.97	1.36	0	3	22	7	2	s.	P. D. Sanders.
Hayflat	Winkler		3																	M. M. Leeman.
Hebbronville	Duval		6								0.00		0.00	0	0					Henry Edds.

TABLE 1.—*Climatological data for July, 1913. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Continued.																				
Hempstead	Waller	254	9								0.40		0.40	0	1	22	0	9	s.	J. H. Hancock.
Henderson	Rusk	500	4								1.07		0.40	0	6	21	6	4		M. Kangerga.
Hewitt	McLennan	664	18								1.02	− 2.34	0.60	0	3					I. H. Earle.
Hico	Hamilton		2								1.44		1.00	0	4	22	2	7	s.	John A. Eakins.
Hillsboro	Hill	628	10	85.8		108	9†	66	4†	40	0.37	− 2.10	0.20	0	3					Thompson & Campbell.
Hondo	Medina	901	14	83.8	− 1.6	100	20†	68	9	30	0.08	− 3.25	0.08	0	1	27	2	2	se.	H. E. Haass.
Houston	Harris	138	23	84.0	+ 0.8	101	20	72	21	27	1.37	− 2.72	0.97	0	5	20	9	2	s.	U. S. Weather Bureau.
Huntsville	Walker	400	29	85.0	+ 1.6	103	20	69	21	28	T.	− 2.91	T.	0	0	27	0	4	se.	W. Y. Barr.
Jayton	Kent		3								1.03		0.60	0	3	29	0	2	s.	Wichita Valley R. R. Co.
Jewett	Leon	496	9	87.1		110	20	68	21	39	T.		T.	0	0	20	11	0	s.	Earle Adkisson.
Junction	Kimble	1,645	12																	Judge John S. Durst.
Kaufman	Kaufman	448	14	85.6	+ 1.6	103	30	68	21	30	3.65	− 0.64	3.00	0	2	24	5	2	s.	B. J. Hubbard.
Kerrville	Kerr	1,650	17	81.3	+ 1.2	98	20†	60	31	38	0.44	− 3.32	0.30	0	2	14	16	1	s.	Robert E. Horne.
Knickerbocker	Tom Green	2,050	9								0.90		0.90	0	1					Jos. Tweedy.
Kopperl	Bosque	576	16								2.10	− 0.66	1.40	0	2	18	8	5	s.	T. A. Johnson.
Lagrange	Fayette	276	3								2.01		1.80	0	5	20	5	6	se.	August Hermes.
Lamesa	Dawson	2,500	3								1.11		1.11	0	1					S. D. Austin.
Lampasas	Lampasas	1,026	21	83.9	+ 1.3	102	10†	67	18†	35	0.29	− 1.57	0.15	0	3	28	0	3	s.	Mrs. K. I. Webber.
La Parra	Willacy	38	11								0.65	− 2.03	0.55	0	2					John G. Kenedy.
Laredo	Webb	421									0.60		0.40	0	2	10	13	8	se.	Mrs. A. H. Jackson.
Laureles Ranch	Nueces	20	13																	Matt Cody.
Liberty	Liberty	38	9	83.6		108	20	67	15†	37	0.65		0.26	0	3	24	2	5	s.	Mrs. Fannie Sneed.
Llano	Llano	1,040	22	86.0	+ 0.7	103	10	70	18	31	0.03	− 1.71	0.03	0	1	21	10	0	s.	E. W. Torrence.
Llano Grande	Hidalgo	86	5	81.8		100	9†	65	6†	34	2.65		2.00	0	3	13	18	0	se.	M. D. Wardlow.
Long Lake	Anderson	229	8								0.40		0.40	0	1	24	3	4	e.	Geo. W. Ellis.
Longview	Gregg	336	27	86.1	+ 2.4	104	8†	70	21	29	3.32	+ 0.09	1.56	0	5	26	2	3	se.	C. A. Propst.
Lubbock	Lubbock		2								0.40		0.40	0	1	30	1	0	s.	L. V. Cory.
Lufkin	Angelina	325	6	83.7		104	8	67	20	35	1.83		0.98	0	3	19	4	8	s.	T. A. King.
Luling	Caldwell	418	24	85.8	+ 1.7	103	20	70	18	31	0.04	− 2.73	0.02	0	2	16	14	1	s.	John Carter.
Lyford	Cameron																			B. D. Stevenson.
McGregor	McLennan	713	3								0.00		0.00	0	0	30	1	0	s.	W. H. Whitley.
McKinney	Collin	612	11	83.2		103	24	66	22	34	6.16	+ 2.88	2.08	0	7	20	7	4	se.	H. Killingsworth.
Marathon	Brewster	4,043	3	73.0		92	11†	55	28	31	3.88		2.20	0	4	23	6	2	e.	Rev. A. P. Willis.
Marble Falls	Burnet	771	5								T.		T.	0	0	20	6	5	s.	B. E. Cochran.
Marfa	Presidio		5								0.00		0.00	0	0					W. L. Jones.
Marshall	Harrison	375	12	83.6		102	19	66	21†	35	2.78	− 0.83	0.94	0	5	3	26	2	sw.	Lee Scott.
Matagorda	Matagorda	12	3								0.00		0.00	0	0	31	0	0	s.	W. E. McNabb.
Mexia	Limestone	537	9	86.9		106	9	70	21	31	0.46		0.25	0	2	16	10	5	s.	Isidore Newman.
Midland	Midland		10	79.6[k]		99[k]	14	60[k]	20	33[k]	1.27	− 0.13	0.85	0	2	7[k]	13[k]	0[k]	se.	A. G. Graham.
Mission	Hidalgo	140	3																	Myron J. Conway.
Mont Belvieu	Chambers	65	3								2.08		0.86	0	7	22	8	1	sw.	A. R. Shearer.
Montell	Uvalde		1								2.60		2.14	0	3	15	13	3	se.	A. G. Beecroft.
Mount Bianco	Crosby	2,750	24	78.6	0.0	98	31	61	19†	34	1.05	− 2.14	1.05	0	1	15	15	1	s.	Geo. W. Smith.
Nacogdoches	Nacogdoches	271	14	82.2	+ 1.4	99	8	67	7†	31	0.81	− 4.23	0.81	0	1	24	2	5	s.	Miss Mary Hofmann.
New Braunfels	Comal	720	24	82.8	0.0	98	31	69	18†	28	1.40	− 1.29	0.93	0	2	14	17	0		J. Giesecke.
Palestine	Anderson	510	31	83.7	+ 2.2	99	8	67	21	29	0.71	− 2.29	0.68	0	2	24	7	0	s.	U. S. Weather Bureau.
Panter	Hood	1,000	24								0.13	− 2.60	0.13	0	1					E. H. Snyder.
Pearsall	Frio	629	3								0.27		0.25	0	2					Earnest De Vilbiss.
Pierce	Wharton	102	7	84.3		103	20	69	19	32	1.52		0.56	0	6	12	1	18	s.	R. B. Pointer.
Plainview	Hale	3,370	17	78.0	+ 1.2	101	11	58	21†	36	2.89	− 0.88	2.60	0	4	19	12	0	s.	J. F. Sander.
Port Lavaca	Calhoun	20	12	84.0	+ 1.0	102	20	70	20	32	0.74	− 3.53	0.46	0	2	24	6	1	se.	J. H. Bickford.
Post	Garza	2,700	3								1.72		1.55	0	2	21	6	4	s.	W. T. Mann.
Putnam	Callahan	1,591	2								0.00		0.00	0	0	31	0	0	s.	S. M. Davis.
Raymondville	Cameron		2	81.8		97	22†	65	4	29	3.90		3.40	0	6	17	14	0	se.	C. H. Pease.
Ricardo	Nueces	57	4	82.4		100	23†	66	18	29	0.15		0.15	0	1	19	9	3	se.	J. S. Lehman.
Rio Grande	Starr		36								0.50	− 0.78	0.50	0	1	20	9	2	se.	D. N. Garza.
Riverside	Walker	169	9								1.45		1.25	0	2	26	2	3	s.	Mrs. C. W. Higdon.
Rockland	Tyler	136	9								0.70		0.60	0	2	17	8	6	s.	Mack Dunkin.
Rockport**	Aransas	12	12	82.2	− 0.8	88	8†	74	20	12	0.28	− 2.20	0.15	0	5	29	2	0	se.	Mrs. G. B. Grewe.
Rossville	Atascosa	558	6	83.2		99	23	67	8	30	0.83		0.64	0	3	12	18	1	se.	W. F. M. Ross.
Runge	Karnes	308	18								0.00	− 3.13	0.00	0	0					Reiffert & Frobese.
Sabinal	Uvalde	964	9	83.9		101	20†	68	9†	31	0.86		0.65	0	2	18	11	2	se.	H. W. Reily.
Salado	Bell		3								0.92		0.92	0	1	25	3	3	s.	L. M. Crockett.
San Angelo	Tom Green	1,847	22	83.4[d]	0.0	104	14	60	27	34[d]	0.60	− 2.03	0.60	0	1	24	7	0	s.	Sam Crowther.
San Antonio	Bexar	701	28	84.5	+ 2.1	101	20	71	9	28	0.03	− 2.19	0.03	0	1	28	3	0	s.	U. S. Weather Bureau.
San Augustine	San Augustine	360	4	82.6		102	19	66	19	36	2.65		1.07	0	5	15[b]	4[b]	10[b]		F. A. Wilson.
San Juanito	Hidalgo		4	85.1		102	26	69	27†	32	0.14		0.05	0	4	0	6	25	se.	J. B. McAllen.
San Marcos	Hays	558	20	83.9	+ 0.9	100	20†	68	18†	30	0.00	− 3.79	0.00	0	0	27	0	4	e.	Miss L. C. Ford.
San Saba	San Saba	1,712	12	83.6	+ 1.7	103	31	64	18	36	0.22	− 2.54	0.22	0	1	26[a]	4[a]	0[a]	s.	Jas. Burns.
Santa Anna	Coleman	1,744				102	10				0.00		0.00	0	0	24	6	1	s.	L. L. Shield.
Santa Gertrudes	Nueces		13								0.61	− 1.59	0.38	0	2					J. B. Wright, jr.
Sealy	Austin	201	2								0.59		0.47	0	2	19	10	2	s.	O. H. Albert.
Seymour	Baylor	1,320	7								0.38		0.25	0	2					T. J. North.
Snyder	Scurry		2	80.8		101	11	61	26	32	2.58		1.13	0	2	23	6	2	s.	Olin F. Hardy.
Somerville	Burleson	251	4	85.8		105	20	68	18	32	T.		T.	0	0	28	1	2	s.	Ed. Herbst.
Sonora	Sutton	2,200	9	81.0[g]		100	20	63	26	35[g]	1.83		1.83	0	1	19[g]	3[g]	2	s.	C. R. Myers.
Spur	Dickens	2,300	2	82.4		102	11†	63	26†	35	0.70		0.41	0	3	22	7	2	s.	J. D. Reagan.
Stamford	Jones		2	84.9		103	10	50	26	27	1.55		1.15	0	2	23[a]	7[a]	0[a]		W. I. Pratt.
Sugarland	Fort Bend	79	12	84.4	+ 2.1	102	20	70	17†	31	1.05	− 3.74	0.52	0	5	30	1	0	s.	Paul C. Rudat.
Sutherland Springs	Wilson	424	3								0.00		0.00	0	0					W. W. Craft.
Tahoka	Lynn			79.4		98	12†	61	21	34	0.53		0.36	0	2	15	16	0	se.	H. C. Crie.
Taylor	Williamson	583	12	84.6	+ 1.9	102	20	70	17	29	0.01	− 2.61	0.01	0	1	19	11	1	s.	U. S. Weather Bureau.
Temple	Bell	630	23	86.2	+ 3.5	103	9†	70	22	29	0.50	− 1.94	0.50	0	1	28	0	3		W. Goodrich Jones.
Thurber	Erath		3								0.36		0.24	0	2					J. K. Ball.
Tivoli	Refugio		3								0.20		0.20	0	1					W. H. Gisler.
Uvalde	Uvalde	937	18	83.4		100	11†	67	8†	31	0.85	− 1.88	0.60	0	2	30	1	0	se.	J. G. McBride.
Valley Junction	Robertson	289	13								0.00	− 2.22	0.00	0	0	26	2	3	s.	Frank Fitzpatrick.
Victoria	Victoria	187	14	86.4[b]	+ 2.4	105	20	71	3†	29	0.30	− 3.59	0.30	0	1	29	2	0	s.	C. C. Zirjacks.
Waco	McLennan	424	24	88.4	+ 5.4	104	10	74	18	27	0.15	− 2.20	0.15	0	1	25	4	2	s.	A. E. Howell.
Waxahachie	Ellis	556	16	86.2	+ 3.0	105	10†	65	22	37	2.33	− 0.76	0.88	0	5	18	10	3	s.	C. D. Longserre.
Weatherford	Parker	864	24	86.2	+ 2.7	105	10	70	21†	33	1.63	− 0.86	1.05	0	3	30	0	1	n.	Miss J. Stickfort.
Wills Point	Van Zandt	524	8	85.4		103	14†	69	22†	32	3.15		2.35	0	3	22	2	7	s.	W. W. Gibbard.
Winters	Runnels		2								2.37		0.97	0	3					Ed. P. Eason.

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
**Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T, Precipitation is less than 0.01 inch rain or melted snow

TABLE 2.—*Daily precipitation for July, 1913. District No. 8, Texas and Rio Grande Valley.*

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
Blanca	Rio Grande									.62							.12			.03	.10	.18	.10	.31									
Cumbres	do						T.			.22	.44				T.			.02	.16	.05	.10	.03	.09	.16							T.		1.46
Garnett	do									T.									.15	1.14	.05												1.27
Hermit	do						T.	T.	T.	T.	.26					.15	T.		.43	.25	.21	.39	.19	T.		T.		T.		T.		T.	1.34
La Veta Pass	do															.15	.23		.16	.21			.43					.23					1.92
Manassa	do						T.	T.		T.																							1.41
Platoro	do						.10		.03	.06	T.						.16	.12	.15	.09	.48	.31	.08	.31	.26					T.	T.	T.	0.95
Saguache	do								T.										.12	.07	.14		.09	.53									2.15
San Luis	do								T.	1.47										.53	.40	.20	.10	.45	.25	.10	T.			T.			2.03
Wagon Wheel Gap Exp. Station	do					T.	T.	.08	T.	.01			T.	.05	.13	.50	T.	.08	.32	.38	.40	.23	.01	.11		T.		T.		T.	.02	.01	2.00
New Mexico.																																	1.83
Agricultural College	Rio Grande					T.	T.							.50		T.	.02	T.	T.		T.	.62											
Alamogordo (near)	do								.01																					.13		1.27
Alamogordo	do																		T.			.28										0.01
Alamos Ranch	do							.45			.09			.06				.08	.07	.02	.25		.01	.08									0.28
Albuquerque	do					T.			.01	.34									.08	.02												.11	1.22
Anclo	do																		.05	.06													0.46
Anchor Mine	do					T.				.30	.40																						
Artesia	Pecos																		.45	.20			.25	.40								.35	2.35
Aspen Grove Ranch	Rio Grande									.10											.10												0.10
Bateman's Ranch	do						T.		T.		.80		T.	.36	.08	.18					.17	.15		.18						.04		.02	1.28
Berino	do														.45	.22	T.	.08		.23	T.	.09								T.			1.87
Bluewater	do								T.	.30					.34						.66												1.00
Boaz	Pecos													.25		.10	1.65		.10		.12							T.		T.			2.52
Capitan	do																				.12												0.12
Carlsbad	do																				.85									.25			1.10
Carrizozo	Rio Grande																		T.		.23	.22	T.					T.	.25				0.70
Cerrillos (near)	do								T.	.02																							
Chama	do									T.	.30				.28	.10	T.			T.		T.	.05						.10			.07	0.82
Cloudcroft	Pecos																				T.		T.	.35	.70							.05	1.78
Corona	do																																
Coyote	Rio Grande													.04							.40												0.40
Cundiyo	do										.09									.04		.03				T.		T.					0.11
Demonstrat'n Farm	Pecos									.22										.42	.20	.07											0.78
Duran	do																		.15	.18				.18									0.73
Elida	do																					.10								.55			0.65
Escondido	Rio Grande																												.38				0.38
Espanola	do										.03		.30	.12					.18														0.60
Estancia	do					.07			T.		.06					T.	.10			.09			.08								.08		0.38
Fort Stanton	Pecos													.10	T.	T.	T.	T.	.19	.05										.74			1.21
Fort Sumner	do													.25	.30	.11	.50					.60	T.							.15	.16		2.07
Gallinas	do															.05				*	.24				.01		T.	T.	T.	T.	.06		0.36
Gallinas Plant'g Sta	do																		.10	.05													
Glorieta Ranch	Rio Grande					.32		T.		.34				T.	T.	T.	.08		*	.73	.36	.10	.13	.16						T.		.02	0.15
Harvey's Up. Ranch	Pecos					.04		.05		.24					.08	T.	.03	T.	.28	.35	.12	.42	.65	.07									2.24
Hobbs	do																				*	1.00				T.			.26	.22			
Hondo Reservoir	do														.02	T.			.10		.01	.10									T.	T.	T.	2.
Jemez Springs	Rio Grande															.23			.07	.20	.03						.27						1.48
Knowles (near)	Pecos																				.08	.05	T.							.01	.08	.04	0.50
Laguna	Rio Grande								T.				T.	T.	T.	T.	T.										T.		1.11	.04			0.66
Lagunita	Pecos											T.												T.		T.	T.	T.					1.28
Lake Valley	Rio Grande		T.	T.					T.												18								.07	.31			T.
Lakewood	Pecos														.48		T.	.04	.22	.30	.42	1.47			34					.40	.04	T.	0.56
Lanark	Rio Grande																																3.37
Las Vegas	Pecos													.80								.45											0.34
Los Lunas (near)	Rio Grande									.11										.14	.22												1.25
Magdalena	do							T.	T.			.05		T.	T.	T.	.55	T.	.15	T.	T.	.10	T.	T.	T.	T.			T.			T.		0.47
Mescalero	do			.10	.01			.02				.02		T.		.17	.06		.31	.03	.01	T.										T.	0.08
Mineral Hill	Pecos					T.							.85				.17				.85								T.	.26	.05		0.85
Monterey	Rio Grande								T.						T.	T.	T.	T.	T.	T.	T.	.16											1.04
Mountainair	do												T.		T.			T.												.15	.05		1.87
Mountain Park	do		.14		.10	.18			.18						24		.06			T.	.06									.88	.27		0.36
Newman	do																			.10		.06	.15								.21	T.	1.33
Nogal (near)	Pecos									T.				.12	.14	.20					.19	T.	.77										1.42
Noria	Rio Grande																									.03			.07	.08	.38		0.77
Orogrande	do	T.		T.							T.		T.			.22	.08				1.22										.06		1.21
Oscura	do																		.20		.80									T.			1.58
Otis	Pecos											.20		.05	.22		.06		.36	.44	.73	.37											1.00
Pastura	do													.21		.15			.11		.05	.26	T.					T.	.54				2.43
Placitas (near)	Rio Grande																													.05			0.96
Plainview	Pecos															.01					.83	.23				T.		1.00		.30			0.41
Red River Canyon	Rio Grande				T.	T.	T.	.10	.30								T.	.40	.80	.30	.20	T.		.30	.20		T.			T.			2.37
Richland	Pecos																				10		.30							.58			2.60
Rincon	Rio Grande														.15	T.																	0.58
Rio Grande Dam	do			.06			.32				T.				T.	T.	.15				.34												0.55
Rio Grande Industrial School	do									.04								T.		.51											.17	T.	1.04
Rosedale	do		.45			.08		.08			.10			T.																			0.55
Roswell	Pecos													T.		.12			.05		.22	.12			.03					.23	.03		1.51
San Marcial	Rio Grande																			T.	.40	.02				.39						.01	0.82
San Rafael	do							T.	T.								.06	.10	.15														0.31
Santa Fe	do					T.			.03	.12			T.		T.	.05	.15	.06		.20										T.			0.46
Santa Fe Canyon	do							T.	T.	T.					T.	.02	T.	T.	.16	.09	.11	.01		T.						.07		.51	1.12
Santa Rosa	Pecos									.13						T.	T.	.05		.15	.10		.40	T.						.22		.21	1.13
Senorito (near)	Rio Grande															T.			.03	.01				.07			.07			.01			0.32
Socorro	do																																
South Fork	do							.17							.30	.06	.14	.21	.16	.15	.32											.10	0.79
Stanley	do															.16			.11	.33	.10	.40	.32	.26							.19	.22	2.91
Tajique (near)	do					.29								.16	.03	.11		.06	.09	.23	.22									.14			0.14
Taos	do						.01	T.		.22	.05					.14			.04	.10	.04		.22	.20						.52	.03		1.74
Taos Canyon	do					T.		.12	.15	.44					T.	T.	T.	.08	.05	.30	.14	.11	.30	.32		T.						.01	1.02
Tecolote	do										T.						.40																2.02
Three Rivers	do														.06						T.									T.			0.40
Tijeras Canyon	do					.11	.02		T.						.03	.08		.05	T.	.53	1.04							T.					0.06
Torrance	Pecos																.30			.45	.53			.09									1.86
Tres Piedras	Rio Grande									.41	.43																						
Truchas	do						.06	T.	.02	.53	.17						.20	.02	.28	.32	.14	.10											2.21
Tularosa	do														.05						.05									T.			1.84
Vaughn	Pecos																																

TABLE 2.—*Daily precipitation for July, 1913. District No. 8*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New Mexico—Con.																																	
Virsylvia	Rio Grande							.02		.06				.02							.03	.20	.08	.09									0.50
Willard	do										.30			T.	.02	.04	T.		T.	.08										.51			0.95
Winsors	Pecos					.03		.15	.63	.02	.12					.05	.01	.21	.03	.60	.32	.06	.74	.51							.06	.30	3.86
Texas.																																	
Abilene	Brazos		.23																						.24	.08	.01					.16	0.72
Albany	do																								.41	.19	.10						0.70
Alice	Coast		.35			.25																											0.60
Alpine	Pecos		.20																	T.	T.		1.60									.60	1.80
Alvin	Coast																							1.56									2.16
Anahuac	do		.78		.05			.12		.05			.08										.11										1.19
Angleton	do	.07			.62	T.			.23													.20	T.			.45				T.	T.	T.	1.57
Antelope	Trinity																								.17		T.						0.17
Aspermont	Brazos																								.28	1.17							1.45
Austin	Colorado				T.	T.															T.						T.					.01	0.01
Ballinger	do	T.	T.																			T.				.08	.10	.25					0.43
Barstow	Pecos																														.20		0.20
Bay City	Colorado			.40				T.						T.			.33															1.80	2.53
Beaumont	Neches			.75			.17			.12								.22				.23		.06	T.		.16				T.		1.71
Beeville	Coast	T.			.06	.05																									.01		0.12
Big Spring	Colorado																									.32	.65						0.97
Blanco	Guadalupe					T.																T.						.06				0.06
Boerne	San Antonio				.05																									.28			0.33
Booth	Brazos																					.15			.10								0.25
Bowie	Trinity																										.85			T.	T.		0.85
Brady	Colorado																																
Brazoria	Brazos																					T.	T.									.06	0.06
Brazos	do		.15																							1.10		.10					1.35
Brenham	do			.56	.09						.40			T.				T.				T.											1.05
Bridgeport	Trinity																								.82	.43							1.25
Brighton	Coast			T.																										T.			T.
Brownsville	Rio Grande	.02	T.		.24												.02								T.				T.			T.	0.28
Brownwood	Colorado	.07	T.																								.68	.05					0.80
Buena Vista	Pecos																					T.	.25										0.25
Cameron	Brazos																																
Carmona	Neches		1.26	.22	T.																T.	.32		.01		T.							1.81
Carrizo Springs	Nueces				.20		.25																T.										0.45
Claytonville	Brazos																								.15	1.12	1.07						2.34
Cleburne	do																																
Clifton	do	.05	.81	.25																							.45					.25	1.81
Coleman	Colorado																				T.						T.					T.	T.
Collegeport	Coast																																
College Station	Brazos										.01															.01						.04	0.06
Colorado	Colorado																							.08	.58	.55	1.48						2.69
Columbus	do		T.	T.							1.90							T.	T.			T.											1.90
Comanche	Brazos		.02	T.																.11	T.					.04	.85						1.02
Corpus Christi	Coast	.99	.10	T.	.09								T.	T.					T.						T.								1.18
Corsicana	Trinity		.10	1.53	T.																	.74											2.37
Cotulla	Nueces																																0.00
Crockett	Trinity		T.	.08																	T.					21					.02		0.31
Cuero	Guadalupe	.10			.06	.02			.02		.75																			.03	.10		1.08
Dallas	Trinity			.71	.89																					.41	T.	.47					2.48
Danevang	Coast	.50	.25				.04																									.67	1.46
Del Rio	Rio Grande																										1.52						1.52
Denton	Trinity	.20		.03																	T.			T.	.20	.04	.38	1.70					2.55
Devine	Nueces				T.	.25																T.											0.25
Dialville	Neches		.55	T.																	T.				T.	T.				.50			1.05
Dilley	Nueces	.50																															0.50
Dublin	Brazos			.19	.05																							.11					0.35
Duval	Colorado				.09	T.																					T.					T.	0.09
Eagle Pass	Rio Grande		.01		T.																		T.	T.			10						0.11
Eastland	Brazos																									T.	T.	T.					T.
Edna	Lavaca		1.10																21														1.31
El Paso	Rio Grande													T.	.12	T.	.16		T.		.36	.48						T.			.01		1.13
Encinal	Nueces																																
Fairland	Colorado				T.	T.					T.										T.						22					21	0.43
Falfurrias	Coast	T.			.19		.18											T.	.73														1.10
Flatonia	Guadalupe		T.	.08		T.							T.				.17												T.				0.25
Flint	Neches	T.	T.	1.02																	.10					T.				T.			1.12
Fort Clark	Rio Grande																						T.				1.50						1.50
Fort Davis	Pecos																				.20		.52			.45				.13			1.30
Fort McIntosh	Rio Grande																																0.00
Fort Stockton	Pecos											T.		T.								T.	T.	T.									T.
Fort Worth	Trinity	.82	T.																		.13	T.			1.22	1.28	.73	.18					4.36
Fowlerton	Nueces	.08																															0.08
Fredericksburg	Colorado																				T.	T.					.15						0.15
Gail	do																							.25	.25	1.15							1.65
Gainesville	Trinity	.30																			1.02						1.95						3.27
Galveston	Coast		T.	T.	.01				.02			T.	.25	T.			T.	.02			.01		1.17	T.				T.					1.48
Garden City	Colorado																				T.						26						0.26
Gatesville	Brazos																										25					.05	0.30
Georgetown	do																																0.00
Goliad	San Antonio			.24	.12																												0.36
Gonzales	Guadalupe	.08	.20			.38																											0.66
Goree	Brazos		T.																						1.52	.55							2.07
Gorham	do		T.																		T.												T.
Graham	do																									T.	T.	.37					0.37
Grand Falls	Pecos																				T.			T.									T.
Grand Saline	Sabine	.81	.74	1.60																	T.											T.	3.15
Grapevine	Trinity	.36	.90																						1.43	.38		1.59					4.66
Greenville	Sabine		4.00	5.70	.35																	.05					.35						10.95
Hallettsville	Lavaca		.10	T.		.20							T.				.22	T.											.18	T.			0.70
Hamlin	Brazos																								2.60	.75							3.35
Harlingen	Coast		.33						.08																					.15		.05	0.61
Harper	Colorado																										24						0.24
Haskell	Brazos	.16																							1.36	.26							1.78
Hayflat	Pecos																																
Hebbronville	Coast																																0.00
Hempstead	Brazos		T.	T.	.40																												0.40
Henderson	Neches	.15	.12	.07							.05										.40										.28		1.07

TABLE 2.—*Daily precipitation for July, 1913. District No. 8*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Continued.																																	
Hewitt	Brazos		.60								.27																				.15	1.02
Hico	do		1.00																						.10	.03	.31					T.	1.44
Hillsboro	do		.20	.03																							.14						0.37
Hondo ‖	Nueces					.08																											0.08
Houston	Coast	.23	T.		.01				T.								T.				.16			T.	T.	T.			T.	T.	.09	.88	1.37
Huntsville ‖	Trinity			T.	T.																										T.	T.
Jayton	Brazos																								.15	.28	.60						1.03
Jewett ‖	Trinity			T.																												T.
Junction	Colorado																																
Kaufman	Trinity	T.	3.00	.65																													3.65
Kerrville ‖	Guadalupe	T.				T.																	.14					.30					0.44
Knickerbocker	Colorado																										.90						0.90
Kopperl ‖	Brazos			1.40	T.																					T.	.70						2.10
Lagrange	Colorado			1.80	.10					T.							.03								T.				.05		T.	.03	2.01
Lamesa	do																								1.11								1.11
Lampasas ‖	Brazos										.09																					.05	0.29
La Parra	Coast	.55																.10															0.65
Laredo ‖	Rio Grande	T.			.40	.20																											0.60
Laureles Ranch	Coast																																
Liberty ‖	Trinity	T.	.26	T.	.14										T.		T.								T.					T.	T.	.25	0.65
Llano ‖	Colorado											.03										T.						T.					0.03
Llano Grande ‖	Rio Grande	.33			.32		T.											2.00											T.				2.65
Long Lake ‖	Trinity		.40																				T.										0.40
Longview ‖	Sabine	.64	1.56	.27																		.70										.15	3.32
Lubbock	Brazos	T.																									.40						0.40
Lufkin	Neches		.98														.05				.80					T.							1.83
Luling ‖	Guadalupe				.02	.02																								T.			0.04
Lyford	Coast																																
McGregor	Brazos																																0.00
McKinney	Trinity	.32	1.06	.92																	.14				2.08	.09	T.	1.55					6.16
Marathon	Rio Grande																					.45	.98		.25				2.20				3.88
Marble Falls ‖	Colorado					T.						T.																					T.
Marfa	Rio Grande																																0.00
Marshall	Sabine	.94	.80								.20															.62					.22		2.78
Matagorda	Coast																																0.00
Mexia ‖	Brazos			T.	T.							.25										.21											0.46
Midland	Colorado																				.42												1.27
Mission ‖	Rio Grande																																
Mont Belvieu	Coast	.58	.44	.09						.02							.07						.02		T.							.86	2.08
Montell	Nueces	.02																				T.	.44			2.14							2.60
Mount Blanco	Brazos																							1.05	T.								1.05
Nacogdoches ‖	Neches		T.	T.																		.81			T.	T.	T.					T.	0.81
New Braunfels	Guadalupe				.47																						T.		T.			.93	1.40
Palestine	Trinity		.68																		.03					T.							0.71
Panter	Brazos																				T.		T.			T.	.13			T.		T.	0.13
Pearsall	Nueces	T.			T.																		25				.02		T.				0.27
Pierce ‖	Colorado		.44	.36					.07													.04		.05			.56						1.52
Plainview	Brazos																				.08			T.	.06	2.60	.15						2.89
Port Lavaca	Coast	.28						T.																								.46	0.74
Post	Brazos																								.17	1.55							1.72
Putnam	do																																0.00
Raymondville ‖	Coast	.03	.01			.33	.07		T.											3.40						T.				.06	T.		3.90
Ricardo	do	.15																															0.15
Rio Grande ‖	Rio Grande					.50																											0.50
Riverside ‖	Trinity		.20	1.25																												T.	1.45
Rockland ‖	Neches				.60																	.10											0.70
Rockport	Coast	T.		.05	.15	T.							.06														T.	T.	.01	.01			0.28
Rossville	Nueces	.64			.09	.10		T.															T.				T.				T.	T.	0.83
Runge	San Antonio																																0.00
Sabinal	Nueces																					.65					.21						0.86
Salado	Brazos																															.92	0.92
San Angelo	Colorado																										.60						0.60
San Antonio	San Antonio				.03																		T.										0.03
San Augustine	Neches	.18	.80	.59									T.								1.07				T.	T.	T.			.01			2.65
San Juanito	Coast	.04			.02													T.										.03	.05				0.14
San Marcos ‖	Guadalupe																																0.00
San Saba	Colorado																										.22						0.22
Santa Anna	do																																0.00
Santa Gertrudes ‖	Coast	.23	.38																														0.61
Sealy	Brazos	T.	T.	T.		.12																								T.		.47	0.59
Seymour	do	.13																												.25			0.38
Snyder ‖	Colorado	.65																								80	1.13						2.58
Somerville	Brazos		T.																														T.
Sonora	Rio Grande																						T.				1.83						1.83
Spur ‖	Brazos	.17																			T.						.12	.41					0.70
Stamford	do																								1.15		.40						1.55
Sugarland ‖	do		.10	.12																	.20								.52			.11	1.05
Sutherland Springs	San Antonio																																0.00
Tahoka	Brazos																										17	.36					0.53
Taylor	do										T.																T.					.01	0.01
Temple ‖	do				.50																												0.50
Thurber	do																										.24	.12					0.36
Tivoli	Guadalupe		.20																														0.20
Uvalde	Nueces																						.60									.25	0.85
Valley Junction ‖	Brazos																																0.00
Victoria ‖	Guadalupe							.30																									0.30
Waco	Brazos				.15																	T.											0.15
Waxahachie ‖	Trinity		.88	.62	.18																	.08				.57		T.					2.33
Weatherford ‖	do		.13																							1.05	T.	.45					1.63
Wills Point	Sabine	.60	2.35	.20																													3.15
Winters	Colorado																								.88	.97						.52	2.37

* Precipitation included in that of the next measurement.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
‡ Separate dates of falls not recorded.
T Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 8, Texas and Rio Grande Valley.*

Date.	Colorado.				New Mexico.														Texas.							
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountain-air.		Rosedale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Spring.		Browns-ville.		Corpus Christi.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	82	43	79	37	97	61	97	65	87	52	92	54	88	53	96	65	83	58	94	61	93	72	84	67	87	73	85	75
2	86	41	82	45	95	65	96	65	86	51	93	60	84	51	93	64	85	67	93	61	98	73	86	69	87	.....	85	75
3	86	41	81	48	98	66	100	66	92	50	95	54	86	54	94	64	86	58	99	59	94	75	86	70	87	.....	85	76
4	87	41	83	42	99	66	100	67	89	50	98	48	86	55	96	66	87	60	99	61	93	73	93	72	85	.....	84	76
5	88	47	83	44	99	65	97	66	91	50	96	48	90	56	94	65	89	60	95	63	92	73	93	72	86	.....	84	77
6	87	50	85	50	96	64	96	65	87	51	90	54	88	56	91	67	86	63	92	61	95	70	96	71	87	.....	87	76
7	90	45	85	48	96	69	96	61	90	54	96	53	88	55	93	63	87	62	99	63	97	75	98	68	89	.....	90	73
8	86	48	82	47	101	66	99	64	92	50	93	52	88	60	95	62	87	63	97	61	98	72	98	69	90	.....	87	75
9	84	46	83	51	100	65	98	64	90	56	95	55	87	58	94	62	81	59	96	61	99	71	98	72	87	.....	88	73
10	85	45	77	52	100	69	101	60	93	54	94	52	88	60	95	61	82	56	98	67	102	72	102	69	91	69	88	74
11	88	50	83	49	104	69	109	67	100	54	96	54	88	59	103	68	90	60	103	69	101	77	105	76	87	75	88	75
12	85	43	84	47	102	73	105	69	93	61	99	53	92	60	98	68	86	63	95	68	95	74	98	73	87	78	85	78
13	87	43	83	48	101	73	104	68	92	55	99	57	90	65	99	69	90	66	100	66	96	77	96	74	89	78	85	78
14	86	49	83	49	92	62	103	69	86	53	93	54	85	56	98	72	86	59	100	60	100	74	104	72	88	76	85	78
15	82	49	80	45	92	67	102	67	88	55	90	50	80	55	98	68	82	59	97	63	97	74	98	70	89	74	85	76
16	82	49	82	47	94	69	99	63	87	50	92	49	84	52	94	65	81	59	95	61	96	72	96	69	89	71	86	75
17	83	45	84[a]	46	92	60	96	60	84	48	89	49	85	55	92	60	84	59	94	59	95	73	97	70	89	71	87	74
18	80	49	81	44	92	65	97	63	84	50	90	54	80	55	92	65	78	55	91	61	97	73	96	69	89	73	86	76
19	85	49	83	44	91	63	95	60	87	51	92	56	80	50	88	64	74	53	89	62	98	72	99	68	91	72	86	73
20	71	50	80	41	89	63	92	67	85	49	88	48	78	50	82	64	70	55	79	61	91	73	93	68	96	71	94	72
21	75	48	80	40	76	65	83	65	84	51	81	43	72	50	82	63	75	55	85	56	94	66	96	66	92	72	92	75
22	76	46	77	39	83	60	90	65	75	49	85	48	72	45	88	62	77	52	92	57	98	72	100	67	94	73	92	74
23	74	45	78	41	89	56	96	61	83	50	86	54	78	50	91	60	75	55	91	62	102	73	103	67	91	75	90	76
24	76	43	76	41	92	53	97	66	85	47	90	56	82	52	92	64	79	52	91	54	101	71	103	72	88	76	86	76
25	78	41	74	39	92	58	93	67	82	47	91	52	82	50	91	64	79	54	90	57	94	68	96	67	89	76	87	78
26	79	39	73	38	93	57	96	62	87	43	88	53	82	48	93	59	79	55	93	56	81	67	85	62	89	76	86	78
27	77	37	74	36	92	57	100	62	86	49	88	57	80	46	96	58	78	54	94	54	96	70	95	66	90	76	86	77
28	79	35	75	34	91	60	91	66	84	51	86	42	82	50	90	64	79	52	91	59	96	74	95	72	90	73	85	77
29	81	36	78	39	90	66	91	65	84	49	82	40	78	50	87	64	80	59	88	58	96	73	96	68	92	70	89	76
30	78	42	77	39	91	60	93	64	81	49	89	47	78	50	90	65	80	52	94	57	98	72	96	67	91	70	89	75
31	82	40	84	37	90	60	98	62	82	50	82	50	80	54	88	64	76	56	89	61	100	72	99	67	91	70	90	74
Mns.	79.2	44.4	80.3	43.5	93.8	63.6	97.1	64.5	87.0	50.9	90.9	51.5	83.3	53.5	92.7	64.2	81.6	57.7	93.6	60.6	96.2	72.4	96.1	69.3	89.3	73.4[b]	87.2	75.5

Date.	Texas.																									
	Del Rio.		El Paso.		Fort McIntosh		Fort Stockton.		Fort Worth.		Galveston.		Halletts-ville.		Houston.		Lufkin.		Palestine.		Plainview.		San Antonio.		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	90	75	97	70	95	75	93	67	89	74	86	79	96	74	88	75	93	72	90	74	87	62	92	74	.....	.....	92	74
2	92	74	95	70	97	75	91	65	85	72	85	76	97	76	86	75	90	72	87	72	89	65	90	75	.....	.....	92	76
3	92	74	97	72	95	75	96	65	85	74	86	80	91	74	86	74	85	70	87	73	92	65	90	74	.....	.....	90	75
4	91	75	99	70	95	73	95	66	90	74	86	76	94	74	90	74	91	71	91	73	90	65	90	73	.....	.....	91	73
5	91	74	97	75	95	71	93	67	92	74	86	79	97	72	92	74	94	69	92	72	90	65	92	73	.....	.....	93	73
6	92	74	94	72	98	72	93	67	98	75	90	78	97	73	95	74	97	71	93	74	91	63	94	73	.....	.....	95	72
7	95	72	96	72	95	75	96	65	99	78	94	78	99	73	96	74	100	68	97	74	93	62	97	73	.....	.....	99	72
8	94	74	99	72	100	75	97	64	100	76	95	76	102	73	99	76	104	72	99	77	94	62	96	72	.....	.....	99	73
9	98	72	98	74	103	68	99	68	104	75	87	79	101	75	97	75	101	72	97	75	96	63	99	71	.....	.....	100	74
10	97	74	100	73	100	75	101	66	106	78	90	79	100	75	96	76	97	72	96	75	96	64	98	74	.....	.....	98	75
11	98	72	104	79	101	75	106	74	102	78	86	81	98	77	92	75	94	75	93	75	101	69	96	72	.....	.....	97	75
12	94	76	102	78	100	76	100	71	95	75	86	76	98	75	91	76	95	72	93	73	96	67	94	74	.....	.....	96	73
13	97	78	100	75	101	71	104	72	97	77	86	80	98	77	92	75	95	72	94	73	94	68	95	76	.....	.....	95	76
14	97	76	94	69	100	75	103	72	99	75	86	80	98	76	93	74	95	72	94	74	98	69	96	74	.....	.....	95	77
15	96	77	95	69	101	72	100	70	97	74	86	80	98	76	93	74	96	69	94	72	96	69	95	75	.....	.....	95	73
16	94	72	95	69	101	73	95	67	94	75	88	77	99	72	93	74	96	70	93	73	94	62	94	72	.....	.....	93	71
17	95	75	93	68	99	75	96	65	95	76	87	79	98	72	94	74	97	70	94	73	92	59	94	74	.....	.....	94	70
18	95	73	95	64	93	73	95	65	98	74	87	78	96	70	94	74	98	69	95	73	94	63	94	72	.....	.....	93	70
19	97	74	92	67	99	73	94	62	102	74	88	76	98	72	97	73	103	69	97	74	94	62	96	71	.....	.....	98	72
20	99	74	87	62	104	74	93	64	97	73	99	75	102	72	101	74	102	67	99	70	88	63	101	74	.....	.....	102	73
21	98	76	80	61	101	72	95	66	93	71	90	77	97	74	94	72	96	69	92	67	89	58	96	74	.....	.....	96	71
22	98	74	85	63	102	88	95	64	98	70	87	77	99	74	94	76	96	72	93	71	96	65	96	76	.....	.....	97	73
23	99	72	90	64	102	78	98	63	102	74	85	78	102	76	96	77	96	70	97	72	99	66	100	74	.....	.....	100	73
24	99	77	94	62	102	76	99	71	103	65	86	80	99	75	93	75	95	73	94	75	97	62	96	73	.....	.....	96	73
25	97	78	93	71	100	76	95	72	91	66	87	81	101	77	92	77	94	76	94	76	94	58	96	76	.....	.....	96	76
26	88	66	94	64	102	76	94	64	93	69	86	81	99	76	93	75	96	72	95	74	82	60	96	76	.....	.....	94	75
27	94	71	94	66	102	76	101	65	96	70	87	81	100	77	94	75	99	71	97	75	92	63	97	74	.....	.....	97	76
28	94	72	90	67	101	76	95	69	96	76	87	81	95	75	92	76	100	73	96	75	88	61	94	73	.....	.....	95	72
29	94	72	88	65	99	74	96	61	96	74	87	80	96	73	95	75	99	70	95	72	89	61	98	73	.....	.....	96	71
30	95	74	90	67	100	78	96	65	100	74	87	80	97	73	95	74	98	72	96	76	90	61	96	73	.....	.....	98	72
31	98	74	88	68	100	78	97	68	100	76	89	77	100	75	95	72	96	68	92	71	95	61	100	74	.....	.....	99	75
Mns.	95.1	73.9	94.0	69.0	99.5	74.8	96.8	66.8	96.5	73.7	87.8	78.5	98.1	74.3	93.5	74.6	96.4	71.0	94.1	73.3	92.8	63.3	95.4	73.6	.....	.....	95.8	73 4

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

GENERAL SUMMARY.

The hot dry weather characteristic of early summer in the Colorado Basin prevailed during the first 5 or 6 days. The following week was marked by scattered thundershowers, which caused some improvement in conditions, but high temperatures continued in the southern half of the district. Beginning on the 14th showers became general, and for 10 days they occurred over the greater part of the district. In localities in Arizona, western New Mexico, and eastern Utah the 24-hour falls exceeded an inch. While the precipitation for the entire month was about normal it exceeded the combined total for April, May, and June, which was only 1.37 inches. Sheep and range cattle industries and dry-farming interests suffered from the drought, and irrigation ditches which receive their supply from the smaller streams experienced a shortage of water. The Indian agencies in the plateau region of northeastern Arizona reported that the season thus far had been so deficient in precipitation as to endanger all crops on the reservations. More rain is needed to bring the ranges in different parts of the district into good condition.

TEMPERATURE.

The mean temperature for the stations reporting was 72.4°, or 1.6° below the normal. The mean for July, 1912, was 70.9°. The highest monthly mean was 90.6°, at Quartzite, Ariz., and the lowest 46.5°, at Corona, Colo. As a whole the first half of the month was warmer than the seasonal average, while the last half was consistently cooler than the average, with marked daily deficiencies in the southern half of the district. During this period freezing temperatures occurred at a number of high stations in the different areas. The lowest temperature, 24°, occurred at Dillon and Fraser, Colo., and Strawberry Tunnel (east), Utah, on the 12th. Temperatures of 100° or higher occurred in the different areas except western Wyoming. The highest temperature, 121°, occurred at Parker, Ariz., on the 15th.

Details of temperature are summarized in the following table:

Areas of States in District No. 9.	Temperature.					
	Mean.	Departure from normal.	Highest.	Station.	Lowest.	Station.
Western Wyoming	60.7	+0.7	95	At 2 stations	30	At 2 stations.
Western Colorado	63.9	−1.6	104	Palisades	24	Do.
Eastern Utah	70.8	−1.5	111	St. George	24	Strawberry Tunnel (east).
Western New Mexico	72.2	−1.1	108	At 3 stations	31	Berger's ranch.
Arizona	78.6	−2.0	121	Parker	28	Alpine.
Southeastern Nevada	79.4	+3.6	113	Logan	40	Caliente.

PRECIPITATION.

The average for the 202 stations reporting was 1.68 inches, or 0.04 inch below the normal. The average for July, 1912, was 2.65 inches. The first 5 days were practically without rain. From the 6th to the 10th scattered showers occurred in the different areas, except western Wyoming. The 14th marked the beginning of fairly well-distributed showers throughout the district. The last 3 days were showery in Arizona and western New Mexico, but in the rest of the district the period from the 25th to the end of the month did not add materially to the water supply. The greatest monthly amount was 4.75 inches at Chlarson's Mill and Fairbank, Ariz., and the least, a trace, at Caliente, Nev. Light snow fell at Grandlake, Colo., on the 11th, and on a number of dates at Corona, Colo. The average number of days with 0.01 inch or more precipitation was 6 in western Wyoming, 10 in western Colorado, 7 each in eastern Utah, western New Mexico, and Arizona, and 2 in southeastern Nevada. The average for the district as a whole was 7 days.

The average precipitation and departures from the normal on the different watersheds are given in the following table:

Watershed.												
Green.		Grand.		San Juan.		Little Colorado.		Gila.		Mimbres.		Colorado proper.	
Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.
1.56	+0.20	1.80	+0.04	1.50	+0.01	1.96	−0.13	1.99	−0.24	1.91	−0.20	1.25	+0.21

MISCELLANEOUS.

The average amount of sunshine, in percentages, with departures from the normal, was as follows: Grand Junction, 77, ±0; Durango, .4, −3; Phoenix, 79, −5; and Yuma, 89, ±0.

The relative humidity reported was: Grand Junction, 44, +9; Durango, 51, −6; Phoenix, 38, +2; and Yuma, 45, +1 per cent.

RIVERS.

The volume discharged by the Colorado and tributaries was much below the normal, and the least in 3 years. The highest stages occurred at the beginning of the month after which there was a steady decline until the 17th. As a result of showers there was a moderate rise in the upper reaches until the 25th. The lowest stages occurred generally at the end of the month.

TABLE 1.—*Climatological data for July, 1913. District No. 9, Colorado Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observer.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Battle Mountain	Carbon	7,300	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Big Piney	Lincoln	6,800	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ira Dodge.
Daniel	....do	6,740	14	57.2	+ 0.7	84	9	30	12†	46	1.11	+ 0.31	0.40	0	6	13	17	1	nw.	J. M. VanDervort.
Eden	Sweetwater	6,577	4	62.0	.....	88	9†	34	12†	46	2.04	.....	0.85	0	7	16	14	1	sw.	Eden Val. L. & I. Co.
Green River	....do	6,083	8	64.7	.....	95	6	31	31	50	0.96	.....	0.86	0	2	6	24	1	w.	Geo. H. Maxon.
Pinedale	Fremont	7,167	7	60.2	.....	86[d]	10	30[d]	31	47	1.09	.....	0.46	0	6	13[d]	11[d]	3[d]	nw.	U. S. Forest Service.
Wamsutter	Sweetwater	6,702	....	65.2	.....	95	5	33	30	46	1.29	.....	0.56	0	9	15	10	6	sw.	T. C. Sherman.
Willow Creek Cabin	Fremont	7,500	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Colorado.																				
Ashcroft	Pitkin	9,483	11	54.3	− 0.4	82	2	30	27†	49	2.53	+ 0.48	0.42	0	14	....	....	....	.....	Dan McArthur.
Blue Valley Ranch	Grand	7,525	....	61.3	.....	89	6	33	31	45	1.67	.....	0.50	0	8	14	10	7	.....	L. R. Hubbard.
Breckenridge	Summit	9,536	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Edwin H. Taylor.
Cascade	San Juan	8,900	6	.....	.....	.....	.....	.....	.....	.....	2.02	.....	0.40	0	12	15	9	7	.....	Western Colorado Power Co.
Cedaredge	Delta	6,175	15	69.4	− 0.3	94	6	44	28	40	0.95	+ 0.10	0.27	0	8	14	13	4	.....	Harry A. Cobbett.
Cochetopa	Saguache	9,088	4	.....	.....	.....	.....	.....	.....	.....	2.67	.....	0.50	0	10	4	7	20	sw.	Miss Bessie McDonough.
Collbran	Mesa	6,000	20	66.8	− 1.5	92	6	44	28	40	2.12	+ 0.92	0.46	0	13	18	11	2	sw.	A. A. Wood.
Columbine	Routt	8,766	3	.....	.....	.....	.....	.....	.....	.....	3.94	.....	0.63	0	13	16	7	8	sw.	Mrs. M. A. Caron.
Columbine Ranch	Delta	6,925	3	.....	.....	.....	.....	.....	.....	.....	1.37	.....	0.45	0	5	21	5	5	s.	George W. Wade.
Corona	Grand	11,660	6	46.5	.....	66	6	30	28	26	4.41	.....	0.80	T.	19	.....	.....	.....	w.	U. S. Weather Bureau.
Cortez	Montezuma	6,100	2	69.5	.....	96	5	43	30	47	0.13	.....	0.08	0	2	31	0	0	sw.	W. G. Clucas.
Crawford (near)	Montrose	6,600	3	66.3	.....	91	6	43	28	36	1.89	.....	0.70	0	9	15	16	0	.....	C. W. Roe.
Crested Butte	Gunnison	8,867	3	54.8	.....	81	5†	28	1	48	1.69	.....	0.33	0	10	9	8	14	.....	Charles L. Ross.
Delta	Delta	4,965	23	76.5	+ 2.5	103	6	45	3	52	1.88	+ 1.01	0.85	0	6	16	12	3	.....	E. M. Getts.
Dillon	Summit	8,800	3	53.1	.....	82	6	24	12	52	2.71	.....	0.52	0	15	12	6	13	sw.	Mrs. Nannie B. Strong.
Durango	La Plata	6,534	19	66.9	− 1.8	94	5	39	28	46	2.47	+ 0.92	0.69	0	14	10	18	3	nw.	U. S. Weather Bureau.
Eureka	San Juan	10,000	6	.....	.....	.....	.....	.....	.....	.....	1.29	.....	0.80	0	4	16	8	7	s.	Western Colorado Power Co.
Fraser	Grand	8,560	4	51.9	.....	79	5	24	12	50	2.71	.....	0.79	0	11	5	7	19	w.	L. D. C. Gaskill.
Fruita	Mesa	4,510	14	70.2	− 4.6	103	6	42	28	51	0.38	− 0.53	0.12	0	4	17	14	0	sw.	J. B. Willsea.
Glade Park	....do	7,000	2	.....	.....	.....	.....	.....	.....	.....	1.13	.....	0.33	0	9	17	14	0	sw.	A. F. Terrill.
Gladstone	San Juan	10,400	6	.....	.....	.....	.....	.....	.....	.....	2.75	.....	0.97	0	11	10	13	8	ne.	Western Colorado Power Co.
Glenwood Springs (near)	Garfield	5,823	15	62.8	− 4.5	96	4†	37	29	56	1.46	+ 0.11	0.48	0	9	23	6	2	w.	E. A. O'Neil.
Grand Junction	Mesa	4,602	22	76.4	− 2.8	100	6	56	30	36	0.31	− 0.19	0.17	0	6	15	12	4	se.	U. S. Weather Bureau.
Grandlake	Grand	8,153	5	.....	.....	.....	.....	.....	.....	.....	2.63	.....	0.92	T.	10	13	12	6	w.	Mrs. Belle Kauffman.
Grand Valley	Garfield	5,089	21	70.6	− 2.0	102	6	41	29	53	1.38	+ 0.46	0.58	0	10	11	12	8	.....	David Evans.
Gunnison	Gunnison	7,670	20	59.4	− 1.7	86	5	30	28	50	0.87	− 0.87	0.56	0	6	13	18	0	sw.	Clarence Adams.
Hayden	Routt	6,337	....	63.8	.....	95	6	35	12	53	1.24	.....	0.54	0	9	8	11	12	s.	A. W. Friederich.
Hesperus (near)	La Plata	7,610	1	.....	.....	.....	.....	.....	.....	.....	2.36	.....	0.84	0	9	11	8	12	.....	G. F. Snyder.
Horsefly	Montrose	8,700	3	.....	.....	.....	.....	.....	.....	.....	2.81	.....	0.78	0	10	17	10	4	sw.	Lawrence J. Finch.
Ironton	Ouray	10,000	3	.....	.....	.....	.....	.....	.....	.....	2.08	.....	0.40	0	9	11	10	10	s.	Mrs. Amanda E. Foley.
Lake City	Hinsdale	8,686	8	59.8	.....	86	5	31	27	43	2.82	.....	0.70	0	15	13	10	8	s.	J. F. Maurer.
Lay	Moffat	6,190	19	64.6	− 1.9	96	6	33	13	55	0.12	− 0.84	0.04	0	5	23	4	4	w.	A. G. Wallihan.
Mancos	Montezuma	6,960	14	66.4	− 0.2	93	5	35	1	52	2.09	+ 0.43	0.55	0	13	6	20	5	w.	Miss Gertrude Rickner.
Marble	Gunnison	7,951	4	59.0	.....	87	6†	32	12†	47	1.95	.....	0.42	0	12	24	7	0	ne.	F. E. Morse.
Marshall Pass	Saguache	10,846	10	.....	.....	.....	.....	.....	.....	.....	1.75	− 0.31	0.20	0	12	10	5	16	.....	Wm. L. Williams.
Meeker (near)	Rio Blanca	6,182	21	63.0	− 2.0	90	6†	37	12†	48	1.10	− 0.54	0.40	0	13	13	9	9	sw.	T. Baker.
Montrose	Montrose	5,811	24	69.8	+ 0.1	95	6†	42	28	42	0.68	− 0.19	0.25	0	6	20	11	0	.....	U. S. Reclamation Service.
Nast	Pitkin	7,953	3	56.6	.....	84	5†	31	28	49	2.15	.....	0.53	0	5	17	10	4	w.	Arthur Hanthorn.
Pagosa Springs	Archuleta	7,108	6	62.0	.....	93	5†	27	28	57	1.29	.....	0.33	0	9	12	18	1	sw.	E. T. Walker.
Palisades	Mesa	4,729	2	75.2	.....	104	6†	46	28	54	0.95	.....	0.50	0	5	13	17	1	.....	E. P. Updegraff.
Paonia	Delta	5,694	18	70.7	− 1.4	99	6	45	28	45	0.90	− 0.10	0.25	0	7	12	18	1	sw.	J. M. Underwood.
Pitkin	Gunnison	9,500	4	.....	.....	.....	.....	.....	.....	.....	2.44	.....	0.85	0	9	16	8	7	.....	Mrs. Maggie Cammann.
Redcliff	Eagle	8,695	20	.....	.....	.....	.....	.....	.....	.....	3.25	+ 1.05	0.60	0	13	14	3	14	.....	Dorothea Greiner.
Redvale	Montrose	6,300	....	67.2	.....	93	7	43	28	39	1.63	.....	0.55	0	8	16	5	10	sw.	Dr. E. S. C. Foster.
Rico	Dolores	8,824	11	.....	.....	.....	.....	.....	.....	.....	1.97	− 1.09	0.44	0	10	19	4	8	s.	Clinton B. Smith.
Rifle	Garfield	5,437	2	70.1	.....	99	7	45	2	46	1.27	.....	0.79	0	9	18	6	7	sw.	Herman Eiche.
River Portal	Montrose	6,570	7	70.4[f]	.....	100	6	47[k]	1†	46[k]	0.86	.....	0.26	0	6	17	13	1	.....	U. S. Reclamation Service.
Sapinere (near)	Gunnison	8,125	10	57.4	− 1.6	82	7	31	28	43	.....	.....	.....	0	....	15	15	1	w.	W. F. Irving.
Shoshone	Garfield	6,110	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Central Colorado Power Co.
Silverton (near)	San Juan	9,400	6	53.2	.....	80	5	26	28	46	2.67	.....	0.89	0	13	8	9	14	sw.	Western Colorado Power Co.
Spruce Lodge	Grand	9,600	5	.....	.....	.....	.....	.....	.....	.....	3.26	.....	0.92	0	13	12	6	13	s.	H. J. Wills.
Steamboat Springs	Routt	6,683	10	58.8[d]	− 2.3	90[d]	6	29[d]	12†	58[d]	2.01	+ 0.78	0.49	0	8	19[d]	7[d]	1[d]	.....	Herbert B. Gee.
Tacoma	La Plata	7,300	6	.....	.....	.....	.....	.....	.....	.....	1.44	.....	0.41	0	10	8	12	11	s.	Western Colorado Power Co.
Telluride	San Miguel	8,756	1	59.2	.....	90	5	30	27	57	3.89	.....	0.56	0	11	15	10	6	nw.	David S. Painter.
Terminal Dam	La Plata	8,300	6	.....	.....	.....	.....	.....	.....	.....	1.34	.....	0.28	0	10	21	8	2	sw.	Western Colorado Power Co.
Yampa (near)	Routt	8,000	4	.....	.....	.....	.....	.....	.....	.....	3.24	.....	0.95	0	9	18	13	0	sw.	Wm. A. Charls.
Utah.																				
Aneth	San Juan	4,800	9	78.4	.....	103	6	52	12	48	1.02	.....	0.42	0	4	22	9	0	.....	Howard R. Antes.
Bluff	....do	4,200	1	78.2[e]	.....	102	5	55[f]	29	40[f]	0.61	.....	0.30	0	5	17	2	12	.....	Herbert H. Redd.
Canaan	Washington	.....	0	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.80	0	6	.....	.....	.....	.....	J. M. Lauritzen.
Castle Dale	Emery	5,500	14	66.4	− 3.1	98	6	38	1	49	1.08	+ 0.54	0.35	0	6	22	9	0	.....	Miss Fay Jeffs.
Cisco	Grand	4,100	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John J. Anderson.
Dragon	Uinta	6,000	3	70.4	.....	96	6	46	12	42	1.73	.....	0.26	0	15	22	6	3	s.	Homer D. Ford.
Duchesne	Wasatch	5,500	6	66.0	.....	91	5†	39	28	48	0.96	.....	0.38	0	8	8	15	8	.....	Matthew M. Smith.
Elkhorn	Uinta	6,657	3	.....	.....	.....	.....	.....	.....	.....	1.54	.....	0.90	0	11	7	21	3	.....	Chas. de Moisey, jr.
Emery	Emery	6,200	12	60.6	− 5.3	89	13	35	10	49	1.22	+ 0.80	0.79	0	3	7	0	24	sw.	Hans C. Wickman.
Escalante	Garfield	5,700	10	68.6	− 0.9	94	7	43	27	45	2.14	+ 0.82	0.75	0	6	16[a]	0[a]	14[a]	.....	Geo. H. Barney.
Fort Duchesne	Uinta	4,941	25	70.2	− 0.9	95	6†	41	28	45	1.31	+ 0.80	0.70	0	8	15	10	6	w.	Geo. W. Dickson.
Fruitland	Wasatch	7,625	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. Peter Naab.
Grayson	San Juan	6,000	6	71.1	.....	95	6	49	26	40	0.19	.....	0.06	0	4	20	11	0	sw.	E. F. Thompson.
Green River	Emery	4,080	13	77.9	− 2.1	106	6	48	28	53	0.59	+ 0.36	0.26	0	5	13	18	0	sw.	Edgar E. Adams.
Hanksville	Wayne	4,200	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. J. Weber.
Hite	Garfield	3,500	13	83.8	− 0.9	110	6	57	27	44	0.44	+ 0.04	0.17	0	5	13	16	2	sw.	John P. Hite.
Hurricane	Washington	3,800	1	.....	.....	.....	.....	.....	.....	.....	0.72	.....	0.30	0	4	10	15	6	.....	Amos Workman.
Kanab	Kane	4,925	5	73.4	.....	104	6	45	24	46	1.20	.....	0.39	0	9	.....	.....	.....	.....	Vermilion Company.
La Sal	San Juan	7,000	10	64.9[j]	.....	86[j]	7	45[k]	26†	33[k]	0.62[f]	.....	0.21	0	6[f]	7[a]	0[a]	17[a]	.....	Gertrude W. Carpenter.
Leeds (near)	Washington	3,400	1	79.3	.....	105	6	55	27	39	0.97	.....	0.51	0	2	6	1	24	.....	B. F. Anderson.
Loa	Wayne	7,000	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. E. Brown.
Manila	Uinta	6,225	3	63.1	.....	87	9†	37	28†	48	1.94	.....	0.45	0	10	12	13	6	.....	Daniel M. Nelson.
Moab	Grand	4,000	23	77.4	− 0.2	107	6	48	12†	50	0.37	− 0.22	0.12	0	5	11	16	4	.....	Henry Crouse.
Monticello	San Juan	7,545	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. F. Barton.
Mountain Home	Wasatch	6,750	....	.....	.....	.....	.....	.....	.....	.....	1.38	.....	0.86	0	7	.....	.....	.....	sw.	Oscar Wilkins.
New Harmony	Washington	5,200	2	.....	.....	.....	.....	.....	.....	.....	1.99	.....	0.82	0	5	.....	.....	.....	.....	Geo. F. Prince.
Orderville	Kane	6,660	3	.....	.....	.....	.....	.....	.....	.....	1.75	.....	0.51	0	8	.....	.....	.....	.....	F. A. Porter.
Pine Valley	Washington	6,000	2	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.65	0	9	11	13	7	s.	Mason Gardner.

TABLE 1.—*Climatological data for July, 1913. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Utah—Continued.																				
Price	Carbon	5,557	2	70.7[e]	.....	100[e]	6†	46[e]	30	48[e]	1.59	.....	0.70	0	8	9	10	12	nw.	George Mathis.
Ranch	Kane	6,700	11	62.4	+ 0.5	93	6	35	27	52	3.09	+ 1.44	1.12	0	6	20	6	5	w.	J. W. Seaman.
San Rafael	Emery	4,250	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jos. J. Nouguier.
St. George	Washington	2,880	26	81.6	− 0.7	111	5	54	12†	54	1.55	+ 0.48	1.03	0	6	14[f]	9[f]	2[f]	.....	Wm. Goodspeed.
Scofield	Carbon	7,625	4	55.8[d]	.....	86[d]	6	26[d]	10	53[d]	3.35	.....	0.64	0	11[d]	15[d]	0[d]	12[d]	s.	B. Newren.
Springdale	Washington	3,500	5	79.8	.....	109	5	53	20	51	1.10	.....	0.35	0	4	15	4	12	.....	Hattie F. Wood.
Strawb'ry Tun'l East	Wasatch	7,650	1	55.7	.....	82	6	24	12	54	1.85	.....	1.15	0	6	18	0	13	.....	U. S. Reclamation Service.
Teasdale	Wayne	7,000	4	.....	.....	.....	.....	38	27	.....	.....	.....	.....	.....	.....	17	9	5	w.	Henry Cullum.
Thompsons	Grand	5,150	2	76.2	.....	102	6	55	12	37	2.02	.....	0.99	0	8	16	9	6	sw.	Mrs. A. M. Starmont.
Tropic	Garfield	7,000	16	65.8	− 1.7	94	6	39	27	40	1.30	+ 0.39	0.77	0	6	13	14	4	sw.	E. P. Bolton.
Trout Creek Range	Uinta	9,200	2	.....	.....	.....	.....	.....	.....	.....	3.24	.....	0.90	0	14	8	15	8	.....	Forest Supervisor.
Vernal	....do	5,050	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. E. Dillman.
Victor	Emery	5,250	1	.....	.....	.....	.....	.....	.....	.....	0.77	.....	0.30	0	4	.....	.....	.....	.....	F. F. Noyes.
White Rocks	Uinta	6,200	2	.....	.....	.....	.....	.....	.....	.....	0.05	.....	0.01	0	5	5	7	19	.....	E. C. Sims.
Woodside	Emery	4,645	2	73.0	.....	104	6	40	28	53	0.53	.....	0.29	0	3	10	9	12	s.	D. P. Adams.
New Mexico.																				
Alma	Socorro	5,500	15	72.4	− 1.9	104	5†	39	28	57	2.20	− 0.40	0.58	0	12	5	22	4	sw.	Max A. Balke.
Aragon	....do	.....	6	66.8	.....	95	11	40	27†	49	1.75	.....	0.50	0	8	11	19	1	sw.	John R. Milligan.
Aztec	San Juan	5,590	13	.....	.....	.....	.....	.....	.....	.....	0.36	− 0.66	0.17	0	3	12	19	0	sw.	Dr. T. J. West.
Berger's Ranch	McKinley	8,000	1	62.1	.....	90	5†	31	28	57	3.60	.....	1.48	0	8	14	11	6	nw.	Herman Berger.
Blackrock	....do	6,500	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Patrick DesGeorges.
Bloomfields	San Juan	5,500	18	71.3	− 3.1	98	8	41	28	52	0.44	− 0.50	0.13	0	4	10	21	0	sw.	Fred LeClerc.
Cambray	Luna	4,215	14	.....	.....	107	12	.....	.....	.....	1.25	− 0.22	0.50	0	4	16	10	5	.....	Agent So. Pac. R. R.
Cliff	Grant	4,470	13	80.5	+ 3.2	106	5†	44	23	50	1.99	− 0.73	0.57	0	6	20	11	0	.....	W. C. Belden.
Columbus	Luna	4,054	4	.....	.....	106	11	.....	.....	.....	0.69	.....	0.21	0	5	8	9	14	sw.	Agent E. P. & S. W. R. R.
Deming	....do	4,333	36	82.6	.....	108	11	58	21	39	3.95	+ 1.83	1.98	0	5	23	8	0	nw.	Agent So. Pac. R. R.
Dulce	Rio Arriba	6,756	16	65.6	+ 0.4	96	5	33	28	55	1.96	− 0.75	0.70	0	7	21	9	1	w.	E. O. Green.
Farmington	San Juan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Orville Ricketts.
Fort Bayard	Grant	6,152	44	72.3	− 0.3	98	11†	51	14†	41	2.20	− 0.89	1.08	0	10	15	7	9	nw.	U. S. Geni. Hospital.
Fruitland	San Juan	4,800	19	72.0	− 2.4	98	6	45	1†	49	1.57	+ 0.62	0.70	0	6	10	21	0	sw.	Cyril J. Collyer.
Gage	Luna	4,486	13	81.8	.....	108	11†	60	13†	41	0.50	− 1.52	0.50	0	1	7	24	0	w.	Agent So. Pac. R. R.
Gila Planting Station	Grant	6,475	2	71.3	.....	97	11	49	27	35	3.26	.....	1.78	0	12	16	13	2	w.	U. S. Forest Service.
G. O. S. Ranch	....do	8,000	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Victor Culberson.
Hachita	....do	4,504	4	.....	.....	108	8	56	28	.....	1.22	.....	0.45	0	6	14	10	7	w.	Agent E. P. & S. W. R. R.
Haynes	Rio Arriba	6,600	2	69.4	.....	95	5	39	1	50	0.04	.....	0.02	0	3	16	9	6	sw.	Mrs. O. L. Wingate.
Hermanes	....do	4,451	4	.....	.....	.....	.....	.....	.....	.....	0.65	.....	0.18	0	5	26	5	0	w.	Agent E. P. & S. W. R. R.
Lordsburg	Grant	4,245	31	78.5	− 3.5	104	4	52	28	45	0.43	− 1.37	0.27	0	3	10	19	2	.....	J. H. McClure.
Luna	Socorro	7,300	12	63.7	.....	93	4	31	28	56	1.58	− 0.80	0.72	0	8	5	26	0	s.	C. B. Martin.
Mimbres	Grant	5,007	8	.....	.....	98	13	.....	.....	.....	2.48	.....	0.66	0	7	18	13	0	.....	Charles Dennis.
Pinos Altos (near)	....do	7,253	2	.....	.....	.....	.....	40	28	.....	3.45	.....	1.13	0	12	7	24	0	se.	O. L. Scott.
Pratt	Grant	4,415	4	.....	.....	103	9	58	3†	.....	3.41	.....	1.07	0	9	18	7	6	e.	Agent E. P. & S. W. R. R.
Putnam	San Juan	6,200	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. F. Spader.
Redrock	Grant	4,150	8	.....	.....	.....	.....	.....	.....	.....	0.81	.....	0.33	0	7	13	18	0	.....	Robt. H. Woods.
Rodeo	....do	4,118	4	.....	.....	.....	.....	.....	.....	.....	0.80	.....	0.20	0	8	16	4	11	sw.	Agent E. P. & S. W. R. R.
Silver City	....do	5,937	2	72.4	.....	98	12	50	28	38	2.24	.....	0.94	0	12	15	15	1	nw.	E. M. Brumback.
Arizona.																				
Allaires Ranch	Cochise	4,184	17	.....	.....	.....	.....	.....	.....	.....	1.69	− 0.76	0.80	0	7	13	14	4	se.	Thomas Allaire.
Alpine	Apache	8,500	4	59.6	.....	89	6	28	28	53	2.66	.....	0.75	0	12	8	10	13	s.	U. S. Forest Service.
Ashfork	Yavapai	5,229	2	.....	.....	.....	.....	.....	.....	.....	0.70	.....	0.45	0	2	16	15	0	.....	Do.
Aztec	Yuma	492	15	89.8	− 5.0	116	10	56	19	46[d]	1.60	+ 1.40	1.07	0	2	14	9	8	ne.	Agent Southern Pacific Ry.
Benson	Cochise	3,523	32	79.4	− 5.4	106	5	54	20†	45	2.63	+ 0.55	0.62	0	8	10	10	11	w.	Do.
Bernardino	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.66	.....	0.50	0	8	0	8	23	w.	Operator E. P. & S. W. R. R.
Bisbee	....do	5,350	23	.....	.....	.....	.....	.....	.....	.....	1.47	− 2.21	0.90	0	7	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Blue	Greenlee	6,500	6	.....	.....	.....	.....	.....	.....	.....	1.39	.....	0.62	0	5	3	27	1	s.	Mary A. Jones.
Bonita	Graham	4,916	39	.....	.....	.....	.....	.....	.....	.....	3.67	+ 1.03	1.55	0	10	16	6	9	.....	A. H. Jelley.
Bowie	Cochise	3,756	37	82.8[d]	+ 2.4	109	11	57	23	39[g]	.....	.....	.....	0	7	12	13	6	w.	Agent Southern Pacific.
Buckeye	Maricopa	982	21	87.0	− 0.4	113	5	58	1†	50	0.44	− 0.79	0.25	0	4	21	9	1	sw.	H. E. Kell.
Canille	Santa Cruz	5,225	4	.....	.....	.....	.....	.....	.....	.....	3.75	.....	1.45	0	13	1	30	0	se.	Robert A. Rodgers.
Casa Grande	Pinal	1,396	32	.....	.....	.....	.....	.....	.....	.....	1.15	+ 0.38	0.75	0	3	22	6	3	sw.	Agent Southern Pacific Ry.
Casa Grande Ruins	....do	1,422	5	87.2	.....	114	11	58	1†	50	0.44	.....	0.23	0	5	15	4	12	w.	Frank Pinkley.
Cavecreek (near)	Maricopa	1,452	6	87.5	.....	113	5†	62	27	39	0.94	.....	0.38	0	5	19	11	1	sw.	John B. Lammers.
Chandler	....do	1,213	18	88.9	+ 0.9	113	5†	56	1	52[d]	0.32	− 1.11	0.20	0	2	23	8	0	nw.	F. V. N. Dana.
Chin Lee	Apache	6,090	5	66.4	.....	90	2	45	1†	36	1.28	.....	0.86	0	8	6	11	14	sw.	Rev. L. Ostermann, O. F. M.
Chlarsons Mill	Graham	8,000	6	64.0	.....	87	5†	43	16†	27	4.75	.....	1.10	0	12	4	25	2	.....	Hiram R. Chlarson.
Clifton	Greenlee	3,584	22	84.4	.....	109	6	63	19	40	3.63	+ 1.62	1.75	0	8	14	10	7	.....	L. C. Kyhl.
Cochise	Cochise	4,219	15	78.3	− 3.1	108	5†	51	27†	49	1.07	− 1.15	0.35	0	5	16	7	8	w.	Agent Southern Pacific Ry.
Columbia **	Yavapai	1,900	13	89.8	+ 2.2	114	5	68	22†	32	0.90	− 1.75	0.25	0	6	15	1	15	e.	M. J. Nolan.
Cornville	....do	3,300	.....	77.2	.....	106	5†	48	1	50	0.42	.....	0.25	0	3	11	20	0	sw.	N. F. Girdner.
Courtland	Cochise	4,543	4	.....	.....	.....	.....	.....	.....	.....	1.83	.....	0.90	0	8	10	15	6	w.	Agent E. P. & S. W. R. R.
Don Luis	....do	5,025	.....	.....	.....	.....	.....	.....	.....	.....	2.85	.....	0.50	0	6	15	5	11	ne.	Do.
Dos Cabezos	....do	5,250	5	74.5	.....	103	2	46	26	50	3.33	.....	1.18	0	10	11	19	1	w.	Neil Erickson.
Douglas	....do	3,930	10	82.0	− 2.0	106	5	57	16	43	3.31	+ 0.56	0.80	0	10	9	16	6	sw.	Dr. F. T. Wright.
Dudleyville	Pinal	2,204	22	79.0	− 4.6	104	5	53	1	47	2.96	+ 0.90	0.71	0	11	3	20	8	sw.	George F. Cook.
Elgin	Santa Cruz	4,706	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Beebe.
Fairbank	Cochise	3,862	4	.....	.....	.....	.....	.....	.....	.....	4.75	.....	0.72	0	10	3	6	22	w.	Agent E. P. & S. W. R. R.
Flagstaff	Coconino	6,907	21	62.8	− 2.2	90	5†	36	27†	48	2.35	+ 0.56	0.65	0	9	14	14	3	sw.	George T. Herrington.
Flagstaff (1)	....do	7,500	5	59.6	.....	91	5†	29	27	52	2.43	.....	0.71	0	13	17	6	8	sw.	U. S. Forest Service.
Florence	Pinal	1,504	14	88.4	+ 0.5	114	11	59	26	45	0.42	− 1.23	0.13	0	5	15	15	1	w.	Agent Ariz. Eastern R. R.
Fort Apache	Navajo	5,200	42	72.4	− 1.5	105	5	44	26	50	0.49	− 2.50	0.10	0	10	15	14	2	nw.	Post Surgeon, U. S. Army.
Fort Huachuca	Cochise	5,100	28	76.8	− 0.2	102	6	55	22†	37	.....	.....	.....	0	7	20	0	11	.....	Do.
Fort Mohave	Mohave	604	44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	August F. Duclos.
Gila Bend	Maricopa	737	23	87.8	− 6.2	114	9	64	27†	44	0.72	− 0.07	0.37	0	2	10	11	10	.....	Agent Southern Pacific Ry.
Globe	Gila	3,625	11	80.8	− 1.4	109	5	54	20	44	3.35	− 0.71	1.50	0	9	10	19	2	nw.	Dr. B. G. Fox.
Grand Canyon	Coconino	6,866	9	66.0	.....	92	6†	42	28	48	3.85	.....	0.80	0	9	11	20	0	sw.	Agent Grand Canyon R. R.
Grand Canyon (1)	....do	3,676	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. W. Zachau.
Granite Reef Dam	Maricopa	1,325	20	87.0	− 2.6	112	5†	61	27	44	1.51	+ 0.01	1.02	0	5	16	11	4	w.	U. S. Reclamation Service.
Hackberry	Mohave	3,500	.....	.....	.....	.....	.....	.....	.....	.....	0.46	.....	0.25	0	4	11	11	9	sw.	A. N. Keech.
Hereford	Cochise	4,180	4	.....	.....	.....	.....	.....	.....	.....	4.47	.....	1.09	0	13	8	10	13	sw.	Agent E. P. & S. W. R. R.
Holbrook	Navajo	5,069	23	71.4	− 4.3	104	4	42	1†	62	20.4	− 0.30	1.44	0	4	21	8	2	sw.	Thorwald Larson.
Indian Oasis	Pima	3,000	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Joseph Menager.
Jerome	Yavapai	4,743	16	79.5	0.0	104	5	55	23	33	3.28	+ 0.56	0.80	0	10	14	16	1	s.	Dr. L. A. Hawkins.

TABLE 1.—*Climatological data for July, 1913. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Arizona—Continued.																				
Keams Canyon	Navajo	6,600	9	70.4	.....	98	5	44	28†	44	0.87	.....	0.40	0	6	14	15	2	w.	Fred A. Bartram.
Kingman	Mohave	3,326	10	80.9	− 1.3	109	11	53	1	47	0.08	− 0.73	0.04	0	3	20	0	11	s.	Agent A. T. & S. F. Ry.
Lakeside	Navajo	6,500	15	64.2	.....	92	12	37	28	49	3.44	+ 0.73	0.66	0	12	8	5	18	sw.	Prof. Joseph Peterson.
Lewis Springs	Cochise	4,029	4	.....	.....	.....	.....	.....	.....	.....	4.46	.....	1.00	0	10	6	4	21	.....	Agent E. P. & S. W. R. R.
McNeal	do	4,150	3	.....	.....	.....	.....	.....	.....	.....	1.50	.....	0.46	0	8	6	20	5	w.	Gladys Taylor.
Maricopa	Pinal	1,186	37	89.3	− 4.5	116	5	62	1†	49	0.37	− 0.43	0.21	0	3	15	15	1	sw.	Agent Southern Pacific Ry.
Marinette	Maricopa	1,150	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Theo. Katzenstein.
Moccasin	Mohave	4,500	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. G. Maxwell.
Mohawk Summit	Yuma	538	13	.....	.....	116	10	63	27	.....	1.51	+ 1.29	0.50	0	4	16	9	6	.....	Agent Southern Pacific Ry.
Naco	Cochise	4,579	4	.....	.....	.....	.....	.....	.....	.....	3.13	.....	1.15	0	10	21	10	0	se.	Agent E. P. & S. W. R. R.
Natural Bridge	Gila	4,990	24	.....	.....	.....	.....	.....	.....	.....	2.02	− 0.53	0.50	0	7	15	13	3	sw.	D. G. Goodfellow.
Nutrioso	Apache	8,000	3	.....	.....	.....	.....	.....	.....	.....	2.34	.....	0.45	0	9	8	7	16	sw.	U. S. Forest Service.
Oracle	Pinal	4,502	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. W. Lawson.
Osborn	Cochise	4,676	4	.....	.....	.....	.....	.....	.....	.....	2.53	.....	0.95	0	7	9	20	2	w.	Agent E. P. & S. W. R. R.
Paradise	do	5,436	7	71.0	.....	99	5	43	27	47	3.76	.....	0.79	0	9	3	27	1	sw.	J. C. Hancock.
Parker	Yuma	345	17	86.4	− 5.5	121	15	62	15†	59	0.58	+ 0.12	0.40	0	4	23	5	3	.....	M. A. Isreal, M. D.
Payson	Gila	5,550	5	70.6	.....	100	5	42	26	50	2.72	.....	0.71	0	9	10	0	21	.....	Mart McDonald.
Phoenix	Maricopa	1,108	19	86.3	− 4.1	110	5	65	27	37	0.94	− 0.13	0.82	0	6	15	8	8	e.	U. S. Weather Bureau.
Phoenix (1)	do	1,092	23	85.4	− 3.4	113	9	59	27	42[c]	1.70	+ 0.44	1.45	0	4	18	11	2	w.	Geo. Acuff.
Phoenix (2)	do	1,189	5	86.0	.....	109	5†	62	1†	41	1.11	.....	0.25	0	7	24	0	7	sw.	Salt River Valley Nurseries.
Pinal Ranch	Pinal	4,520	19	.....	.....	.....	.....	.....	.....	.....	2.62	.....	1.05	0	7	.....	.....	.....	.....	Irion & Craig.
Pinedale	Navajo	6,500	1	.....	.....	.....	.....	.....	.....	.....	2.47	.....	1.17	0	10	4	17	10	sw.	E. Thomas, jr.
Pinto	Apache	5,660	9	.....	.....	.....	.....	.....	.....	.....	1.04	.....	0.40	0	5	17	10	4	sw.	Celia F. Henning.
Prescott	Yavapai	5,320	46	69.4	− 1.6	99	5	44	27	47	3.27	+ 0.30	1.20	0	10	16	9	6	.....	Dr. J. W. Flinn.
Prescott Dry Farm	do	5,008	1	73.3	.....	101	6†	51	23†	38	1.99	.....	0.83	0	7	18	10	3	s.	L. L. Bates.
Quartzsite	Yuma	800	6	90.6	.....	118	11	65	27	40	0.90	.....	0.31	0	5	12	14	5	sw.	W. E. Scott.
Redrock	Pinal	1,864	5	.....	.....	.....	.....	.....	.....	.....	1.48	.....	0.70	0	4	16	4	11	ne.	Agent Southern Pacific Ry.
Rice	Gila	2,540	30	81.2	− 4.9	109	5	52	27†	58	1.32	− 0.32	0.56	0	8	23	3	5	w.	Arthur Pritchard.
Roosevelt	do	2,175	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Reclamation Service.
Sacaton	Pinal	1,280	6	87.0	.....	112	5	61	27†	46	0.92	.....	0.32	0	5	.....	.....	.....	.....	E. W. Hudson.
St. Johns	Apache	5,650	9	70.7[d]	.....	105	5†	38	28	51[d]	2.10	.....	.....	0	...	11	18	2	sw.	Alexander Shreeve.
St. Michaels	do	6,950	26	68.5	− 0.6	96	5	40	28	50	0.95	− 1.09	0.55	0	3	16	11	4	sw.	Rev. Anselm Weber, O. F. M.
San Simon	Cochise	3,609	27	82.0	− 1.9	108	10†	56	21†	42[a]	0.85	− 0.12	0.35	0	3	.....	.....	.....	nw.	Agent Southern Pacific Ry.
Seligman	Yavapai	5,219	8	71.6	.....	100	5†	42	27	52[a]	0.35	.....	0.35	0	1	17	0	14	sw.	Librarian A. T. & S. F. Ry.
Sentinel	Maricopa	685	15	.....	.....	115	9	.....	.....	.....	0.02	− 0.62	0.01	0	2	19	4	8	w.	Agent Southern Pacific Ry.
Silverbell	Pima	2,664	8	.....	.....	109	5	.....	.....	.....	0.36	.....	.....	.....	.....	.....	.....	.....	.....	Imperial Copper Co.
Snowflake	Navajo	5,644	6	67.6	.....	99	6†	37	28	54	1.01	.....	0.66	0	4	6	0	25	sw.	William J. Flake.
Springerville	Apache	6,862	3	63.3	.....	91	5†	36	2	53	2.57	.....	0.42	0	9	17	8	6	sw.	U. S. Forest Service.
Supai	Coconino	3,200	7	83.8	.....	110	6†	60	27†	45	0.82	.....	0.30	0	7	14	12	5	.....	Laura B. Symons.
Tempe	Maricopa	1,165	9	86.6	.....	112	5†	60	1†	48	2.23	.....	1.59	0	7	14	14	3	se.	F. H. Simmons.
Thatcher	Graham	2,800	10	83.0	+ 1.8	112	1†	55	2	55	3.48	+ 0.98	1.24	0	8	8	23	0	.....	J. H. Larson.
Tombstone	Cochise	4,550	18	78.4	+ 0.2	107	5	54	27	41	4.54	+ 1.24	1.56	0	13	7	22	2	sw.	F. N. Wolcott.
Truxton	Mohave	3,997	3	74.4	.....	105	6	41	3	55	1.58	.....	1.10	0	7	13	9	9	s.	Truxton Canyon Indian School.
Tuba	Coconino	4,500	13	74.4	− 2.8	100	5†	45	28	43	0.58	− 0.11	0.19	0	8	13	17	1	sw.	Ira E. Bell.
Tucson	Pima	2,390	33	83.5	− 3.0	109	5	58	1	47	1.32	− 0.71	0.64	0	9	7	16	8	w.	University of Arizona.
Tucson (1)	do	2,380	5	82.2	.....	110	5	52	27	52	1.48	.....	0.44	0	9	14	17	0	sw.	Rev. James F. Record.
Tucson (2)	do	2,526	4	83.5	.....	108	5	57	29	45	3.06	.....	1.06	0	8	11	9	11	w.	U. S. Coast & Geod. Survey.
Vail	do	3,421	14	75.0	.....	105	5†	50	22†	46	2.75	+ 1.46	0.70	0	6	5	6	20	.....	Agent, Southern Pacific Ry.
Walnut Grove	Yavapai	3,649	20	.....	.....	.....	.....	.....	.....	.....	2.75	+ 0.74	1.10	0	6	.....	.....	.....	.....	J. O. Carter.
Wickenburg	Maricopa	2,072	15	83.6	− 1.8	114	12	50	18	52	0.54	− 0.57	0.29	0	3	19	0	12	.....	Agent, S. F. P. & P. Ry
Willcox	Cochise	4,164	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, Southern Pacific Ry.
Williams	Coconino	6,750	13	68.8	+ 1.1	98	5†	37	27	50	1.80	− 1.28	0.60	0	4	14	14	3	.....	E. J. Nordyke.
Winslow	Navajo	4,855	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Winslow High School.
Yuma	Yuma	141	33	88.2	− 2.7	115	10	61	27	44	0.17	+ 0.05	0.15	0	2	27	4	0	s.	U. S. Weather Bureau.
Yuma (1)	do	150	6	82.8	.....	112	10	54	27	48	0.04	.....	0.03	0	2	24	6	1	sw.	C. J. Wood.
Nevada.																				
Caliente	Lincoln	4,407	3	68.2	.....	98	10	40	27†	48	T.	.....	T.	0	0	18	13	0	ne.	Salt Lake Route.
Las Vegas	Clark	2,033	11	84.3	+ 3.6	112	10†	56	26†	44	0.35	+ 0.14	0.15	0	3	16	7	8	s.	C. P. Squires.
Logan	do	1,355	6	85.6	.....	113	6†	55	27	50	0.05	.....	0.03	0	2	24	4	3	s.	Orin W. Jarvis.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 9, Colorado Valley.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Battle Mountain	Snake																																
Big Piney	Green						T.				T.								T.				.40	.35	.05	.09	.15		.07	T.			1.11
Daniel	do			T.	.16																	.15	.85	.40				.08	.20		.20		2.04
Eden	do				.10			T.	T.								T.	T.			T.	T.	.86	T.									0.96
Green River	do																						.36	.08	.46	.10	.03		.06				1.09
Pinedale	do			.06										.03	.01		.07		.07				.56	.20	.18						.11		1.29
Wamsutter	do																																
Willow Creek Cabin	do																																
Colorado.																																	
Ashcroft	Grand						.03	.02	.07	.33	.09					.22	.06	.20	.42	.31	.13	.19	.13	.33				T.					2.53
Blue Valley Ranch	Yampa													T.	.17	.06	.12	.50	.42			.05	.05	.30									1.67
Breckenridge	Grand																																
Cascade	San Juan					.04		.17	T.		.33				.09		.40	.29	.22	.06	.24	.05	.05	.08		T.							2.02
Cedaredge	Gunnison								.27		.12				.08	.10		.05	.02	.25	.06												0.95
Cochetopa	do							T.	.25	.40	.10	.24	.10			.50	.30	.18	.20					40									2.67
Collbran	Grand						T.	.01		.08	.02			T.	.09	.03	.46	.02	.09	.22	.17	.20	.34	.39	T.	T.		T.					2.12
Columbine	Yampa			.06					.08	.03			.20	.63				.30	.18	.56	.45	.40	.32	.45	.28								3.94
Columbine Ranch	Gunnison							.30										.10	.25	.45				.27									1.37
Corona ‖	Grand								.16	.02	.02	.22			.04	.58	.28	.64	.18	.35	.04	.43	.07	.80	.50		.02	.02	.02		.02		4.41
Cortez	San Juan										.08					T.						.05											0.13
Crawford (near)	Gunnison								.09	.21	.07				.07		.70		.49	.10				10				.06					1.89
Crested Butte	do						T.	T.	.04	T.					.05	.33	.10	.10	.13	.33	.30	.06	T.	.25			T.	T.					1.69
Delta	do								.10		.18						.28		.85	.42	.05												1.88
Dillon	Grand							.23			.20				.10	.12	.17	.52	.41	.04	.29	.04	.06	.38		.10	.02	.03					2.71
Durango	San Juan						.02		T.	.55	.01			.05	.01	.09	.24		.34	.68		.13	.01	.27			T.			.03		.04	2.47
Eureka	do	T.				T.	T.	T.					T.	T.	.10	T.	.18	.80	T.	.21	T.	T.	T.	T.					T.				1.29
Fraser ‖	Grand								.12							.79	.32	.33	.16	.18	.03	.21	.02	.18	.37								2.71
Fruita	do							T.		.12				T.	.12		.07	T.	.07	T.	T.	T.	T.	T.		T.							0.38
Glade Park	do						T.	.01	T.	.06				T.	.10	.33	T.	.07	T.	.06	.10	.25	T.	.15				T.					1.13
Gladstone	San Juan					.02	T.	T.	T.	T.	.29			.11		.21	.39	.97	.14	.22	.14	.09	.17	T.									2.75
Glen'd Spr'gs (near)	Grand																.16	.14	.10	.43	.04	.05	.08	.40	.06								1.46
Grand Junction	do							T.		.02	.05			.02	T.	.15	.02	.05	T.	T.	T.	T.		T.		T.							0.31
Grandlake	do					T.	T.	.10	T.	.20	.50	T.	.10	.11					.92	.10	T.	.40	.10	.10				T.	T.				2.63
Grand Valley	do							T.	T.		.15			T.	.04	.09	.01	.06	T.	.58	.04	T.	.31	.09	.01	T.		T.					1.38
Gunnison	Gunnison							T.	.04								.10		.56	.06	.08	.03					T.						0.87
Hayden	Yampa									T.	.19			T.	.04	.10			.54		.08	.03	.07	.06	.13								1.24
Hesperus (near)	La Plata						.10				.84				.08	.05	.08		.38		.32	.10		.41									2.36
Horsefly	Gunnison									.14	.20				.12	.44	T.	.20	T.	.18	.30	.78	.30	.15									2.81
Ironton	do						T.			T.	.32					T.	.13	.40	.33	.37	.10	.11	.20	T.	.12								2.08
Lake City	do							.06	.60	.13	.16				.03	.11	.70	.20	.06	.18	.37	.08	.03	.06	.05								2.82
Lay	Yampa							T.			.01							.03		.03	.01		.04										0.12
Mancos	San Juan						T.	.34	.05	.55	.24				T.	.29	.06	.06	.08	.06	.08	.18	.06	.04			T.	T.	T.					2.09
Marble	Grand										.17				.19	.08	.05	.06	.42	.27	.11	.29	.15	.09	.07								1.95
Marshall Pass	Gunnison				.15	.20		.10	.15			.20							.20		.15		.10	.20	.10	.10	.10						1.75
Meeker (near)	White							.02		T.	.17				.02	*	.40	.06	.10	.01	.02	.02	.06	.20	.02	T.							1.10
Montrose	Gunnison										.19				.03	.15		.04		.02				.25									0.68
Nast	Grand															.42	.50	.53	.50					.20									2.15
Pagosa Springs	San Juan						.11	T.	T.	.25	.33					.04	.03	.09		.22	.21	T.	T.	.01									1.29
Palisades	Grand								T.	T.	.14			T.	.09	.09	.13			.50	T.			T.		T.		T.					0.95
Paonia	Gunnison							T.	.09	.05								.25	.14	.12	.19		T.	.06		T.		T.					0.90
Pitkin	do							.11		.25							15		.11	.12	.85	.10	.25	.50									2.44
Redcliff	Grand							.40	.60						.30	.20	.50	.20	.10	.17	.15	.20	.05	.27	.11								3.25
Redvale	San Miguel						T.	T.		T.	.10					.30	.13	.08	.55	.08	T.	.20	T.	.19				T.					1.63
Rico	Dolores						.25	.16	.05	.16	.14	.04			.44	.08					.31			.34								T.	1.97
Rifle	Grand									.05	.01			T.	.01	.10	.11	.18	.01	.01	T.	T.		.79		T.							1.27
River Portal	Gunnison								T.	T.	.21				T.	.10	T.	.10	T.	.26	T.		T.	.15			.04						0.86
Sapinero (near)	do						.11	.02		.08	.24				.01	.23	.17	.03	.03	.04	.18	.02											
Shoshone	Grand																																
Silverton (near)	San Juan					T.		.05	.24	.20				.05		.21	.35	.89	.14	.17	.12	.07	.12	.06									2.67
Spruce Lodge	Grand							.08			.12					.33	.25	.30	.19	.36	.01	.47	.11	.10	.92				.02				3.26
Steamboat Springs	Yampa													.05	.10	.10	.49	.21	.27				.32						.47				2.01
Tacoma	San Juan						T.	.06		*	.20				T.		.12	.18	T.	.15	.20	.41	.05	.07									1.44
Telluride	San Miguel								T.	.18	.44			T.		.06	.53	.56	.26	.56	.49	.16	.36	.29				T.					3.89
Terminal Dam	San Juan							T.		T.	.21				.05	.04	.11	.28	T.	.21	.05	.27	.07	.05									1.34
Yampa (near)	Yampa							.10			.06				T.		.46	T.	.30	.52	.06	.26	.53	.95									3.24
Utah.																																	
Aneth	San Juan															.24		.12		.42			.24										1.02
Bluff									.30	.10								.09					.03	.09									0.61
Canaan	Colorado																	T.	.15	.23	.03	.15	.80				.13						1.49
Castle Dale	Green							.05									32			.25			.35	.06	.05								1.08
Cisco	Grand																																
Dragon	Green							.17			.11			.19	.12	.21	.02	.05	.16	.07	.26	.03		.13	.14		.05	.02					1.73
Duchesne	do								.38						.02		T.	.05	T.	T.	.10	.10		.28	.02			.01					0.96
Elkhorn	do								.02	.02					.02			.10		.30	.06	.04	.06	.40	.50		.02						1.54
Emery	Colorado								T.	.20			T.	T.	T.	T.	T.	T.	T.	T.	T.	T.	.79	.23	T.	T.							1.22
Escalante	do																	.02	.50	.30				.50	.75		.07						2.14
Fort Duchesne	Green							T.	.20	T.	.08				.04	T.		.70	.05	T.	T.	.01		.20	T.	.03							1.31
Fruitland	do																																
Grayson	San Juan														T.	T.	T.	.05	.06			.05	.03			T.		T.					0.19
Green River	Green										.03			.11						.17			.02	.26									0.59
Hanksville	Colorado																																
Hite	do							T.		T.	.09					T.	T.	.10		.03	T.	T.	.17	.05									0.44
Hurricane	do																			.12	.10	.30	.20										0.72
Kanab	do								.14							.07		.07	.03	.25	.39	.15	.06				.04						1.20
La Sal	Grand							T.		T.	T.			T.	T.		.08	.07	T.	.21		.19	T.	.04		.03		T.					0.62
Leeds (near)	Colorado																			T.	T.	.51	.46										0.97
Loa	do																																
Manila	Green									.03								.45	.12	.20	.30	.16	.40		.10			.05			.13		1.94
Moab	Grand							.05			.12						T.	.04		.10				.06									0.37
Monticello	do																																
Mountain Home	Green									.02	.06							.15	.05	.08	.86	.16	T.	T.									1.38
New Harmony	Colorado																.82		.15	.35			.55	.12									1.99
Orderville	do								.51										.08	.02	.25	.16	.45	.01	.27								1.75
Pine Valley	do							.40									.20	.35	.05	.65	.15	.05	.25	T.								.05	2.15
Price	Green							.15		.11					.07		.20	.02			.30		.70		.04								1.59
Ranch	Colorado							.05										1.12		.44	.43		.30		.75								3.09
San Rafael	Green																																
St. George	Colorado																	.02		.39	.05	.04	1.03	.02									1.55

TABLE 2.—*Daily precipitation for July, 1913. District No. 9*—Continued.

ations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Utah—Continued.																																	
Scofield	Green							T.	T.	.05						.10	.29	.43	.57	.15	.14	.51	.64	.36					.11				3.35
Springdale	Colorado																		.25	.20	.35	.30											1.10
Strawberry Tunnel	Green													.19				.06	.06			.33	1.15	.06									1.85
Teasdale	Colorado																																
Thompsons	Green								T.	.02				.04		.04	.99	.38	.09	.26		T.	T.	.20				T.					2.02
Tropic	Colorado							.04		.04							T.	T.	T.	.07	.24	.14	.77											1.30
Trout Creek Ranger	Green				.05			.10	.02					.10			.05		.35	.85	.90	.01	.10	.35	.25		.10				.01		3.24
Vernal	do																																
Victor	do								.08				.17						22						.30								0.77
White Rocks	do								.01		.01			T.				T.	.01	T.	T.			.01				.01					0.05
Woodside	do								.10					T.	T.		T.	.14						.29									0.53
New Mexico.																																	
Alma	Gila					T.			.11			.06	.04		.15		.23	T.	.50	.08	T.	.43	.30						.20	.02	.08	2.20
Aragon	do								.10		.10				.40		.50	.15		.10	.30	.10	T.								T.	1.75
Aztec	San Juan						T.		T.	T.				T.		.11		T.	.08	T.		.17	T.						T.				0.36
Bergers Ranch	L. Colorado						T.	T.	T.	.18	T.			T.		.60	.65	T.	.22	T.	1.48	.24	T.						.10	T.	.13	3.60
Blackrock	do																													T.		T.	0.44
Bloomfield	San Juan						T.		T.	T.					T.	T.	.13	T.	T.	T.	.08	T.	.10	.13						T.			1.25
Cambray	Mimbres														.50		.08	T.				.17	.50										1.99
Cliff	Gila										T.		T.		.17		.30					.50	.57						.15	.30			0.69
Columbus	Mimbres													.21		.20			T.			.02	.18							.08			3.95
Deming	do														1.98		.03						.32	1.57						.05			1.96
Dulce	San Juan						.05			.30	.45						.06					.32	.08	.70									2.20
Fort Bayard	Mimbres							.01	T.		T.	T.		.23	.85	.28	T.	.06	.04	.01	T.	.60	.05	T.							.07	T.	1.57
Fruitland	San Juan								.15	T.				T.		T.	.45	.25	.18	.07		T.	.47										0.50
Gage	Mimbres													.50				T.	T.	T.	T.	T.								T.			3.26
Gila Planting Sta	do					T.		T.	T.	T.	T.		T.	.70	1.08	.13	.11	.07	.48	.02	.03	.42	.08							.12	.02	
G. O. S. Ranch	Gila																																
Hachita	do							T.	T.			T.	T.	.45	.21		.07			.06		.35	.08										1.22
Haynes	San Juan							T.	T.	.01			T.	T.			T.	.01	T.			T.	.02										0.04
Hermanes	Mimbres								.18			.13							.06										.11	.17			0.65
Lordsburg	Gila					.16											.20	.04	T.	.12	T.	.12	.15										0.43
Luna	do							T.	.15	T.	.17	T.	.05				.10		.43		.30	.40	.13										1.58
Mimbres	Mimbres								.43						.66															.16			2.48
Pinos Altos (near)	Gila								.04	.21	.01		.26	*	.93	1.13	.09		.18		.49		.05									.06	3.45
Pratt	do														.02			.14	.16	.37	.77	1.07		T.		.03				.81	.04	3.41
Putnam	San Juan																															T.	0.81
Redrock	Gila			T.					T.	T.	T.				.33	.13	.03	.02	.05	.02	.13	.10											0.80
Rodeo	do																.05		.18	.07		.20	.05	.05						.05	.15	
Silver City	Mimbres		T.			T.		T.		T.	T.		.04		.94	.11	.08		.22	.02	.04	.34	.12						T.	.08	.12	.13	2.24
Arizona.																																	
Allaires Ranch ‖	Sonora														.10				.80	.10		.42								.10	.03	.14	1.69
Alpine	Gila										.63	.05		.58	.02	.13		.15		.16	.08	.75	.04										2.66
Ashfork	Verde							T.							T.	T.	T.	.25	.45					T.	T.		T.				.05	.02	0.70
Aztec	Gila																		.53	1.07													1.60
Benson	San Pedro							.03			T.			.10				.42	.17	.62		.47												2.63
Bernardino	Sonora			T.	T.			T.					.50				.12			.05	.07	.30								.56	.26		1.66
Bisbee	San Pedro															.15	.10			.05	.08	.11								.02	.25	.35	1.47
Blue	Gila							T.				.10			.20		.22	.25	.62			T.								.08		.90	1.39
Bonita	do							.18	.20					.21			.65	.20	1.55	.13	.25	.18										T.	3.67
Bowie	do																															.12	
Buckeye ‖	do						T.							.10			.06	.03		T.		.25											0.44
Canille	San Pedro				T.	.02	.09	T.	.22				T.	.12	.18		.42	.43	.08	T.	.15	.40	T.		T.					1.45	.10	.12	2.75
Casa Grande	Gila						T.													.75	.25	.15											1.15
Casa Grande Ruins	do						T.			T.				T.	.23	T.		T.	.02	.04	.04	.11											0.44
Cave Creek (near)	Desert						.06							.13					.02	.35		.38										T.	0.94
Chandler	Salt									T.						12			20			T.											0.32
Chin Lee	L. Colorado							T.	.04	.02			.03	T.	.86	T.	T.	.08	.05	.19	.01	T.		T.							.03	.69	1.28
Chlarsons Mill	Gila									1.10							.51	.35	.87	.21	.70	.80	.05		.01	.03							4.75
Clifton	do							1.75	T.		T.				.14		.84	.13		.40	T.	.23	.10									.04	3.63
Cochise	Desert								T.		.15							.14	.25			35								18			1.07
Columbia	Agua Fria																.15	.25	.10	.15	.15	.10											0.90
Cornville	Verde									T.						.12	T.			.05		25											0.42
Courtland	White						.18			.05			.10					T.	T.	.10	.30									20	.45	.45	1.83
Don Luis	San Pedro													.50	.10		.35			T.	.28	.22										1.40	2.85
Dos Cabezos	Desert								.58	.25	.10						.14	.15	.30	.32		1.18	.06								.25		3.33
Douglas	Sonora							.18		28				.8		T.	.57	T.	.05	.03	.07	.20		T.							.60	.47	3.31
Dudleyville	Gila						.02	T.		T.				.27	.25	.13	.01	.71	.02	.18	.65	.20	T.							T.		.52	2.96
Elgin	San Pedro																																
Fairbank	do						T.					.28		.56	.44	.57	.30		.72	.65	.68									21		.34	4.75
Flagstaff	L. Colorado						T.	T.	.60	T.						19	.04	.18	.15	.01	.65	.11										T.	1.93
Flagstaff (1)	do						.01	.02	.06	.27	T.				.04	.47	.28	.08	.04	.14	.29	.71	.02											2.43
Florence	Gila														12			13	.06	.06												.05	0.42
Fort Apache ‖	Salt						T.		.10	.01					.01	.10	.01		.10		.01	.02										.06	.07	0.49
Fort Huachuca ‖	San Pedro																																
Fort Mohave	Colorado																																
Gila Bend	Gila																.35	.37															0.72
Globe	Salt						.40			.24	.03				.08	T.		.13	.35		1.50	.47										.15	3.35
Grand Canyon	Colorado							.25							.20	.80	.40	T.	.25	.40	.80	.20	.60				T.					T.	3.85
Grand Canyon (1)	do																																
Granite Reef Dam	Salt														.24		.09			.06	.10	1.02											1.51
Greer	Little Colo								.12	.12				.40	.52				.78	.15	.05		.64											2.78
Hackberry	Colorado						T.	T.		.08							T.			.06	T.	.07	.25	T.			T.						0.46
Hereford	Gila			.07				.43	.34					.50			.38	.20		.41	1.09	.35	.03							.02	.40	.25	4.47
Holbrook	Little Colo												1.21	.23				.24	T.						T.	.36				T.	T.	2.04
Indian Oasis	Desert																																
Intake	Salt						.90	.08	.20										.45		.35	.30		.40									2.68
Jerome	Verde						.26	T.		.45						.40	.80	.62	.16	.13	.18	.12	.16											3.28
Keams Canyon	Little Colo									.18				.06	T.	T.	.40		.12	T.	.01	.10		T.										0.87
Kingman	Colorado																T.	.02	T.	T.		.04		.02										0.08
Lakeside	Little Colo							.06		.56	.05				.33	.33	T.	T.	.18	.48	.24	.66	.18		T.						.24	.13	3.44
Lewis Springs	San Pedro								.13		.38	T.	.40		.15		.55	1.00	.50			.50	.15									.70	4.46
Lowell Observatory	Little Colo						T.	T.	.82	T.	.02					.24	.07	.15	.20	.02	.74	.15	.43										.02	2.86
McNeal	White													.26			.11	.09		.10	.09	.20		T.							.19	.46	1.50
Maricopa‖	Gila									T.							T.	.08	.21			.08										T.	0.37
Marinette	Agua Fria																																
Moccasin	Colorado																																

TABLE 2.—*Daily precipitation for July, 1913. District No. 9*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Arizona—Contd.																																	
Mohawk Summit	Gila																		.45	.40	.16	.50											1.51
Naco	San Pedro				.05			.14						.35	.08		.15	.38		.38	.12	.33										1.15	3.13
Natural Bridge	Verde															T.	.14	.28	.31	.46	.25	.50										.08	2.02
Nutrioso	Little Colo				T.	T.	T.	.12		T.	.45			.20	.40	.20	.30					.31	.20	T.	.16								2.34
Oracle	San Pedro																																
Osborn	do				T.			.08									.95			.13	.40	.10	T.								.58	.29	2.53
Paradise	Desert								T.	.67						T.	.33	.13	.36	.34		.79	.10							.36	.68	T.	3.76
Parker	Colorado																			.10	.40	.05										.03	0.58
Payson	Verde					22										.30	.13	.19	.71	.23	.32	.50										.12	2.72
Phoenix	Salt								T.	T.				T.	.01	.08		T.	.02	.80	.02	.01										T.	0.94
Phoenix (1)	do									T.					T.		.03	T.	T.	.18	1.45	.04										T.	1.70
Phoenix (2)	do						T.							.14		.25		.18	.22	.12	.12	.08										T.	1.11
Pinal Ranch‖	Gila																.25	.24	.04	.32	.55	.17										1.05	2.62
Pinedale	Little Colo								.07	.07						.31	.05		.22		.14	1.17	.10								.19	.15	2.47
Pinto	do			T.			T.		T.	T.	T.	T.			T.	T.	T.	T.	.37	.05	.10	.40		T.		T.					.12	1.04
Prescott	Hassayampa						T.	T.	.60	.14	.06					1.20	.38	.07	.16		.06	.16	.44									T.	3.27
Prescott Dry Farm	Verde							.83		.25						.30			.31		.06	.11	.13										1.99
Quartzsite	Colorado																	.10	.27	.16	.31	.06											0.90
Redrock	Santa Cruz																		.25	.70	.38											.15	1.48
Rice	Gila									.15							.03	.03	.56	.02	.16	.35	.02										1.32
Roosevelt	Salt																																
Sacaton	Gila																		.18	.32	.29	.06										.07	0.92
St. Johns	Little Colo									.25					*	*	*	*	.65	.50		.58										.12	2.10
St. Michaels	do							.20	T.						T.	T.	T.	T.	T.	T.	T.	.55	.20								T.		0.95
San Simon	Gila								T.								T.		.30	.35	.20											T.	0.85
Seligman	Verde						T.										T.		.35			T.	T.	T.								T.	0.35
Sentinel	Gila																		.01	.01													0.02
Silverbell	Santa Cruz																																0.36
Snowflake	Little Colo															.24		.03			.08	.66	T.									T.	1.01
Springerville	do								.40		.21			.42	.26	.18	.25		.17			.40	.28										2.57
Supai	Colorado								.03								.06	.06	.10			.30	.22	.05									0.82
Tempe	Salt										T.	T.			.08		1.59	.25		.15	.11	.02	.03									T.	2.23
Thatcher	Gila								.25		.05						.25	.75	1.24	.35		.51			T.							.08	3.48
Tombstone	San Pedro							.04			.15		1.56		.32		.03	.18	1.24	.13	.40	.06								.08	.08	.27	4.54
Truxton	Colorado						T.	.02	T.	T.							.12			.09	.21	.02	1.10	.02									1.58
Tuba	Little Colo							.01		T.				T.	.16	.02		.07			.04	.19	.06		.03								0.58
Tucson	Santa Cruz						.09									.01			.64	.04	.13	.21	T.	.03							.01	.16	1.32
Tucson (1)	do						.17									.07		.02	.44	.18	.16	.20	.02		T.							.22	1.48
Tucson (2)	do						T.	.14										T.	.73	1.06	.27	.40								.02	.20	.24	3.06
Vail	do													.15				.20	.55	.60		.70								.55			2.75
Walnut Grove	Hassayampa						.30			.40								1.10	.40		.23		.32										2.75
Wickenburg	do						.29			T.														.20								.05	0.54
Willcox	Desert																																
Williams	Colorado							.50								.60		.30				.40											1.80
Winslow	Little Colo																																
Yuma	Colorado							T.												T.		.15										.02	0.17
Yuma (1)	do																		.03	T.	T.		.01									T.	0.04
Nevada.																																	
Caliente	Colorado																		T.	T.	T.	T.	T.	T.			T.						T.
Las Vegas	do																T.	T.	T.	T.	.08	T.	.15	.12	T.	T.	T.	T.					0.35
Logan	do																	T.	T.	T.	T.	.03		.02	T.								0.05

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 9, Colorado Valley.*

Date.	Wyoming.				Colorado.										Utah.										New Mexico.			
	Daniel.		Green River.		Durango.		Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.		Fort Duchesne.		Hite.		Moab.		St. George.		Bloomfield.		Fort Bayard.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	72	34	86	38	88	45	93	57	81	39	84	39	82	32	72	41	88	48	103	62	100	50	101	57	94	42	93	52
2....	70	43	81	53	89	47	98	62	82	45	87	39	84	33	70	40	91	47	104	60	100	56	104	60	97	47	91	59
3....	68	45	85	53	88	42	97	63	81	41	87	39	83	39	71	42	89	54	103	74	99	65	101	71	93	49	93	59
4....	68	47	78	44	88	46	94	62	80	36	87	39	.....	.....	75	41	85	61	101	76	98	59	102	68	92	49	94	63
5....	78	36	89	39	94	51	97	62	86	36	87	39	85	33	76	41	93	48	107	69	104	57	111	57	97	48	94	63
6....	81	38	95	44	91	57	100	66	85	44	90	42	90	32	81	42	96	51	110	74	107	66	108	66	97	63	90	60
7....	83	44	91	52	90	51	100	70	84	40	90	48	89	41	80	40	95	59	109	73	106	64	104	69	97	59	92	62
8....	81	46	91	49	92	52	96	67	84	36	85	52	87	41	81	39	92	58	107	75	103	63	106	71	98	56	91	63
9....	84	46	92	54	87	54	96	70	82	50	85	47	82	41	80	39	90	61	104	75	102	65	107	69	97	61	93	63
10....	72	45	83	56	87	57	96	66	79	49	85	52	80	51	71	35	89	69	104	76	99	65	108	69	92	63	91	63
11....	68	34	73	47	88	51	89	60	81	43	84	43	72	40	76	40	86	58	98	73	93	57	105	68	95	53	98	70
12....	75	30	87	36	88	48	91	56	82	46	84	37	81	29	80	41	89	48	101	66	98	48	105	54	93	49	98	67
13....	74	32	84	47	90	49	99	66	82	36	89	44	89	32	89	40	90	48	103	71	101	59	102	76	95	52	92	66
14....	75	34	88	46	87	57	91	69	79	35	81	56	76	45	85	46	90	56	100	81	98	67	100	77	93	60	81	51
15....	76	34	89	47	83	58	87	63	76	40	80	50	75	50	81	49	89	53	94	79	90	72	101	80	90	59	86	57
16....	70	39	80	54	84	55	83	62	72	46	72	50	75	46	83	47	88	62	99	71	95	62	101	74	88	59	85	58
17....	83	45	91	57	83	53	85	65	74	40	75	53	75	45	80	41	85	55	96	69	93	64	92	71	89	55	83	57
18....	82	43	85	56	81	56	86	60	79	53	74	50	70	45	81	43	85	55	93	66	86	62	92	69	90	55	82	55
19....	79	40	82	53	78	52	86	60	72	50	78	53	.....	.....	80	45	83	57	92	65	88	51	96	64	85	59	81	56
20....	81	42	87	42	77	52	83	61	70	46	74	53	.....	.....	77	42	84	59	95	66	94	56	93	66	85	58	80	61
21....	80	40	82	42	76	56	87	66	71	45	74	49	75	38	85	43	85	56	96	70	91	60	95	64	86	61	72	54
22....	77	56	78	53	79	57	86	66	69	42	76	52	76	43	81	41	86	57	95	65	93	63	95	64	85	58	74	55
23....	72	54	79	53	76	49	82	63	75	49	75	52	67	49	80	40	80	53	91	70	91	65	88	65	80	50	80	54
24....	68	55	89	41	78	44	88	58	77	50	76	46	72	50	76	39	81	69	96	67	93	54	91	57	83	48	83	55
25....	67	39	78	39	79	45	86	61	74	52	77	41	72	34	73	41	82	42	94	70	93	56	92	60	83	51	83	53
26....	68	36	75	44	78	42	86	60	76	35	75	39	77	33	80	46	84	48	91	62	90	50	92	54	85	46	84	53
27....	69	34	76	37	75	43	80	62	69	35	73	42	76	39	71	41	77	59	87	57	86	57	92	54	82	43	82	52
28....	66	34	78	40	80	39	86	57	70	30	77	37	74	35	78	44	83	41	94	59	93	48	94	55	87	41	84	51
29....	65	33	80	41	80	45	90	59	75	32	80	38	76	32	80	45	86	43	95	63	94	52	93	59	86	46	83	57
30....	70	34	69	47	83	45	90	56	71	33	80	40	79	29	85	47	84	46	94	60	98	60	96	56	86	58	80	57
31....	76	30	85	31	87	47	92	61	79	35	80	40	.....	.....	88	50	89	45	103	68	101	54	101	55	91	46	82	60
Mns..	74.1	40.2	83.1	46.3	84.0	49.8	90.3	62.5	77.3	41.5	80.7	45.2	78.5[d]	39.1[d]	78.9	42.3	86.8	53.7	98.7	68.8	96.0	58.9	98.6	64.5	89.7	52.9	85.4	58.3

Date.	Arizona.																						Logan, Nev.	
	Douglas.		Flagstaff.		Fort Apache. §§		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		Tucson.		Yuma.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.	100	68	85	37	98	48	90	48	104	68	104	67	94	47	92	42	105	58	111	67	109	59
2.	104	62	83	42	96	60	90	48	104	65	104	69	91	51	90	48	104	62	105	70	109	64
3.	102	59	82	50	96	60	88	46	108	63	104	72	89	51	89	54	101	73	106	74	106	64
4.	105	66	86	52	97	50	86	46	118	65	102	77	91	55	91	52	102	75	107	66	106	65
5.	106	68	90	46	105	61	90	48	116	63	110	76	99	53	96	48	109	73	111	74	112	66
6.	105	70	90	54	98	60	92	49	112	63	108	81	98	60	94	57	107	74	112	77	113	76
7.	101	67	83	60	95	53	92	44	108	65	104	80	93	62	94	60	100	73	105	82	110	74
8.	101	73	85	52	96	58	90	48	104	63	107	81	93	58	90	58	103	78	112	77	112	76
9.	102	72	84	53	93	58	88	50	102	63	110	84	93	61	91	57	106	81	114	78	113	76
10.	105	75	85	54	95	59	86	50	104	63	108	82	93	61	89	55	105	73	115	79	113	71
11.	102	74	90	53	99	55	88	52	104	64	110	82	98	63	92	54	107	82	113	79	111	75
12.	102	73	89	46	98	61	88	54	112	65	106	79	94	54	94	48	106	77	107	82	113	69
13.	95	69	82	57	92	60	86	52	110	65	98	79	89	65	90	58	103	77	98	79	100	57
14.	87	68	77	58	88	60	80	56	118	65	96	76	82	61	86	56	93	77	99	78	103	82
15.	95	70	68	54	89	59	78	54	121	62	100	76	85	57	84	55	99	71	106	72	104	75
16.	98	57	71	53	85	56	80	52	118	67	100	73	77	55	85	56	95	74	106	76	106	69
17.	95	67	73	52	87	54	82	50	116	67	95	74	77	54	82	54	96	70	106	77	90	67
18.	93	65	72	50	88	53	80	50	116	65	95	69	77	56	82	53	88	60	100	75	95	72
19.	93	67	70	49	85	51	78	48	99	86	95	68	79	57	79	42	88	66	97	77	99	71
20.	82	64	72	50	84	51	78	48	101	63	93	68	80	55	81	54	85	66	99	77	101	75
21.	80	61	66	51	82	58	78	50	104	63	87	72	75	60	77	51	84	64	96	73	98	73
22.	90	62	65	51	75	48	80	48	102	72	93	70	69	56	76	54	92	63	101	68	86	70
23.	96	69	70	41	84	50	80	49	103	65	98	69	77	46	76	50	97	62	101	69	94	65
24.	97	70	73	41	88	50	82	48	102	63	98	68	79	45	81	48	98	62	101	65	98	62
25.	96	69	72	41	95	47	80	48	104	63	97	70	79	47	80	46	98	65	102	67	97	57
26.	97	70	66	40	85	44	78	46	103	63	89	66	72	47	78	52	97	59	90	67	93	59
27.	95	68	69	36	88	45	80	45	104	62	95	65	75	44	75	45	96	59	95	61	96	55
28.	95	68	71	36	86	45	82	42	102	65	95	66	78	45	80	40	96	62	100	68	98	60
29.	97	67	74	37	90	54	80	44	102	65	95	68	81	46	82	48	96	62	100	66	99	60
30.	97	59	79	40	90	57	80	44	102	63	98	66	86	47	86	50	96	67	104	66	103	60
31.	90	67	81	51	84	55	80	48	100	78	90	75	82	55	89	50	93	68	95	70	107	63
Means.	96.9	67.2	77.5	48.0	90.7	54.2	83.5	48.5	107.2	65.5	99.5	73.1	84.7	54.0	85.5	51.5	98.2	68.8	103.7	72.8	103.0	68.3

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 10, GREAT BASIN.

ALFRED H. THIESSEN, Section Director.

GENERAL SUMMARY.

July was unusually cool and wet. The temperatures for the district as a whole averaged as low an any on record for July, excepting in 1897, 1902, and 1912. The precipitation was the heaviest for July on record in the Nevada area, and in the Utah area it was nearly as heavy as in July, 1912, the rainfall in which month was exceeded only in July, 1896.

From an agricultural viewpoint the month was very favorable. The frequent showers were beneficial to dry farms and kept the ranges green, but some damage to hay was reported. There was an unusual number of cloudbursts during the month, which added materially to the irrigation water supply. In Nevada the cloudbursts and excessive rainfall caused train delays by washing out the roadbed both on the Southern Pacific and Western Pacific Railroads. There was also considerable damage to private property.

TEMPERATURES.

The temperature for the district averaged 67.6°, which is 3.3° below normal, and the individual means varied from 53.8° at Park City, Utah, to 82.4° at Jean, Nev. The temperature chart shows that the highest means occurred in the more level counties in the Utah area and in the southern half of the Nevada area. The lowest means were observed in the Wyoming area and in the more elevated portions of the Utah area.

The deficiencies of temperature were very large at a few stations. At Kelton, Utah, the mean was 65.4°, being 11.6° below normal; at Tecoma, Nev., the mean was 63.4°, being 10.8° below normal, and at Beowawe, Nev., the mean was 66.5°, or 10.7° below normal. The excesses in the monthly mean temperature were very few, the greatest being 2.8° at Burns, Oreg.

The temperatures during the first half of the month were near the normal, with the exception of the 5th, 6th, and 7th, when the weather was abnormally warm and the highest temperatures of the month were generally observed.

After the 10th the weather grew cooler at many places, becoming generally so on the 12th; and the lowest temperatures for the month were recorded at a majority of stations during the period from the 10th to the 14th.

Although the mean temperatures averaged considerably below normal, nearly all stations reported maximum temperatures of 90° or above, and at 11 stations temperatures of 100° or over were observed. The highest temperatures that occurred in the various states having areas in this district were as follows: 88° at Border, Wyo., on the 6th; 98° at Grace, Idaho, on the 6th; 103° at Low, Utah, on the 10th; 95° at Burns, Oreg., on the 25th; 88° at Bridgeport, Cal., on the 5th and other dates; and 110° at Jean, Nev., on the 11th.

Temperatures of 32° or below occurred in all the areas of the several States in this district except Idaho. As these low temperatures occurred at the more elevated stations, no damage to tender crops resulted. The lowest temperatures were: 30° at Cokeville, Wyo., on the 12th; 34° at Paris, Idaho, on the 2d, 4th, and 29th; 21° at Park City, Utah, on the 7th; 25° at Cliff, Oreg., on the 13th; 32° at Bridgeport, Cal., on the 16th; and 26° at Wells, Nev., on the 14th.

PRECIPITATION.

The monthly precipitation ranged from as high as 7 06 inches at Park City to a trace at Farmington and Corinne, all in Utah. The average for the district as a whole was 1.40 inches, or 0 89 inch above the normal. The rainfall was well distributed, there being only a few stations having deficient amounts, while many reported several times their normal amounts.

The rainfall in the Nevada area was particularly heavy, and the section director of that State writes:

> The average precipitation for the Nevada area was 1.52 inches, which is six times the normal amount. Tonopah reported 0.16 inch, and is the only station having less than the normal. In the northern section amounts ranged from 0.27 inch at Gerlach to 4.51 inches at Golconda. In the middle section amounts ranged from 0.16 inch at Tonopah to 2.36 inches at Potts. In the southern section the amounts ranged from 0.95 inch at Oasis Ranch to 1.48 inches at Lida. The heaviest precipitation in 24 hours was 2 inches at Golconda on the 22d. Seven places in the State reported over 1 inch in 24 hours. Because of the mountainous character of the country rains did a great deal of damage to roads and railroads, causing washouts and landslides, making the roads impassable and delaying train service many hours in some instances. A large amount of alfalfa hay was spoiled, but ranges are in excellent condition.

The largest 24-hour amount of rainfall in the district was 2.22 inches at Park City, Utah, on the 18th.

The greater portion of the rain fell from the 15th to the 28th. There was also scattering showers on various dates from the 3d to the 10th in all areas excepting California.

MISCELLANEOUS PHENOMENA.

The average number of clear days for the district is 15, partly cloudy days 10, cloudy days 6, and rainy days 6.

The observer at Morgan, Utah, reported a terrific thunderstorm in the vicinity of his station on the 23d, which did considerable damage to crops and property.

The observer at Showell, Utah, reported a severe thunderstorm on the 26th, which damaged grain and gardens.

Mr. Charles Pratt, of North Fork, Nev., reported that rains from 18th to 28th spoiled considerable hay.

Mr. C. M. Carter, of Smith, Nev., reported that the July rains did more damage than good, that hundreds of tons of hay were spoiled, ditches were filled with mud, obstructing the flow of water, and that the second crop of alfalfa was yellow from too much water.

TABLE 1.—*Climatological data for July, 1913. District No. 10, Great Basin.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Border	Lincoln	6,085	11	61.5	− 0.4	88	6	33	12†	46	2.97	+ 2.36	1.48	0.0	6	15	10	6	w.	S. W. Condron.
Cokeville	do	6,204	3	59.0	.....	87[i]	6†	30[i]	12	49[i]	1.74	.....	0.78	0.0	7	19[f]	1[f]	5[f]	w.	E. J. Tuckett.
Evanston	Uinta	6,860	17	59.5	− 2.1	85	6†	33	12	42	2.01	+ 1.13	0.91	0.0	6	16	14	1	w.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake	6,171	4	.....	.....	.....	.....	.....	.....	.....	1.84	.....	0.87	0	5	18	10	3	.....	F. W. Boehme.
Grace	Bannock	5,400	6	66.4	.....	98	6	36	12†	50	.....	.....	.....	0	....	12	11	8	.....	E. W. Joy.
Paris	Bear Lake	5,946	18	59.0	− 3.9	86	20†	34	2†	45	0.76	+ 0.03	0.45	0	4	18	12	1	sw.	John Norton.
Weston	Franklin	4,460	14	66.0	− 1.7	92	17	38	31	45	1.27	+ 0.62	0.41	0	8	19	6	6	n.	Wm. T. Chatterton.
Utah.																				
Alpine	Utah	4,900	14	.....	.....	.....	.....	.....	.....	.....	0.45	− 0.17	0.45	0	1	16	11	4	.....	T. F. Carlisle.
Beaver	Beaver	6,000	9	65.7	.....	97	6	36	1†	57	1.55	.....	0.40	0	10	9	21	1	.....	Henry Baker.
Black Rock	Millard	4,872	9	69.1	.....	98	5	34	1	60	0.13	.....	0.13	0	1	14	17	0	s.	W. D. Livingston.
Brigham City	Boxelder	4,305	....	71.9	.....	94	6	50	12	38	0.30	.....	0.07	0	6	.....	.....	.....	.....	Nephi M. Valentine.
Burrville	Sevier	6,800	2	61.4[d]	.....	87[g]	5	35	12†	50[g]	1.96	.....	0.90	0	10	.....	.....	.....	.....	F. R. Curtis.
Castle Rock	Summit	6,244	8	.....	.....	.....	.....	.....	.....	.....	1.61	.....	0.65	0	12	14	16	1	w.	David Moore.
Cedar City	Iron	5,750	8	71.4	.....	97	6	50	4†	38	1.13	.....	0.46	0	8	15	9	7	sw.	Parley Dalley.
Center	Tooele	4,250	3	68.8	.....	96	6†	45	1†	44	1.13	.....	0.33	0	8	15	12	4	s.	L. C. Peterson.
Clarkston	Cache	5,930	2	.....	.....	.....	.....	.....	.....	.....	0.35	.....	0.25	0	2	15	8	8	.....	W. J. Griffiths.
Corinne	Boxelder	4,240	43	71.3	− 7.6	95	7†	40	4	45	T.	− 0.62	T.	0	0	20	9	2	.....	A. C. Murphy.
Deseret	Millard	4,541	18	72.7	+ 0.3	102	6	40	12	56	0.35	+ 0.11	0.35	0	1	15	8	8	s.	S. W. Western.
Elberta	Utah	4,650	11	73.0	− 1.7	98	6	43	12	47	0.80	+ 0.33	0.50	0	5	14	14	3	s.	D. C. Walkey.
Enterprise	Washington	5,750	7	.....	.....	.....	.....	.....	.....	.....	1.21	.....	0.49	0	7	22	3	6	.....	Jas. E. Hall.
Erekson	Tooele	4,850	1	.....	.....	.....	.....	.....	.....	.....	1.11	.....	0.41	0	7	.....	.....	.....	.....	N. W. Erekson.
Farmington	Davis	4,267	12	71.9	− 0.6	93	1†	45	31	44	T.	− 0.50	T.	0	0	23	8	0	sw.	Chas. Boylin.
Fillmore	Millard	5,100	21	73.4	− 2.0	101	5†	48	28	49	1.04	+ 0.34	0.65	0	6	.....	.....	.....	.....	J. J. Starley.
Garland	Boxelder	4,248	1	70.6[a]	.....	94	8	46	11	39[a]	3.04	.....	2.20	0	7	9	21	1	s.	Heber C. Cutler.
Garrison	Millard	4,850	9	70.8[g]	.....	96[g]	6†	40	1	50[g]	0.36	.....	0.26	0	2	10	4	12	s.	E. M. Smith.
Government Creek	Tooele	5,277	12	70.9	− 2.3	96	6	46	14	43	0.71	+ 0.16	0.28	0	7	21	5	5	s.	Walter James.
Granger	Salt Lake	4,560	1	.....	.....	.....	.....	.....	.....	.....	0.50	.....	0.50	0	1	.....	.....	.....	.....	Geo. E. Greene.
Grantsville	Tooele	4,220	6	.....	.....	.....	.....	.....	.....	.....	1.63	.....	1.10	0	7	12	19	0	sw.	Monto Barrus.
Grouse Creek	Boxelder	5,148	3	.....	.....	.....	.....	.....	.....	.....	3.14	.....	1.55	0	9	14	6	11	s.	Philip Paskett.
Heber	Wasatch	5,593	20	63.8	− 2.3	90	5†	33	12	51	1.10	+ 0.28	0.30	0	8	16	12	3	s.	John Crook.
Henefer	Summit	5,301	13	64.2	− 0.8	90	8	35	12	48	2.12	+ 1.32	0.75	0	9	16	9	6	w.	William Brewer.
Hooper	Weber	4,436	2	.....	.....	.....	.....	.....	.....	.....	1.00	.....	0.70	0	2	.....	.....	.....	.....	T. M. Jones, jr.
Ibapah	Tooele	7,500	8	65.4[e]	.....	95[e]	6†	36[e]	12	57[e]	2.06	.....	0.65	0	7	11	11	9	s.	W. M. Chastain.
Ibex	Millard	5,250	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John J. Watson.
Iosepa	Tooele	4,356	2	72.6	.....	100	6	47	4	43	0.87	.....	0.50	0	3	4	6	21	n.	Geo. K. Hubbell.
Junction	Piute	6,000	1	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.66	0	5	11	20	0	s.	Joseph Jensen.
Kanosh	Millard	5,250	6	.....	.....	.....	.....	.....	.....	.....	0.19	.....	0.12	0	4	.....	.....	.....	.....	Geo. Crane.
Kelton	Boxelder	4,230	33	65.4	−11.6	92	5	37	14	47	0.94	+ 0.58	0.42	0	4	0	28	3	s.	F. W. Klock.
Lemay	do	4,221	2	80.2	.....	94	10	66	1	21	0.56	.....	0.36	0	5	13	12	6	e.	Agent S. P. Co.
Levan	Juab	5,010	23	70.0	− 1.6	95	6	45	4	40	0.40	− 0.21	0.14	0	6	16	9	6	sw.	Wm. Brown.
Logan	Cache	4,507	22	68.9	− 2.8	90	6	46	14	36	1.98	+ 1.49	0.42	0	11	.....	.....	.....	.....	Utah Experiment Station.
Low	Tooele	4,602	2	77.1	.....	103	10	50	4	40	1.50	.....	1.50	0	2	26	2	3	.....	Agent W. P. Co.
Lucin	Boxelder	4,504	6	68.4[e]	.....	95[e]	7	44[e]	4†	43[e]	2.52	.....	1.05	0	10	16	13	2	.....	E. C. Puryear.
Manti	Sanpete	5,575	18	69.4[e]	− 0.6	90	5	40[f]	25	41	0.40	− 0.19	0.15	0	5	9	0	22	.....	J. M. Anderson.
Maple Creek	Utah	4,890	2	.....	.....	.....	.....	.....	.....	.....	1.19	.....	0.70	0	6	18	9	4	.....	Lewis W. Gillilan.
Marion	Summit	6,400	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jas. Woolstenhulme.
Marysvale	Piute	6,180	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Lafe King.
Meadowville	Rich	6,200	12	62.4	− 2.0	88	5†	35	31	48	0.80	+ 0.31	0.60	0	3	20	4	7	.....	J. S. Moffat.
Midlake	Boxelder	4,235	2	74.1	.....	86	7	59	4	15	1.20	.....	1.10	0	2	14	10	7	e.	Mrs. S. M. Gibson.
Midvale	Salt Lake	4,365	1	72.3	.....	96	8†	43	11	48	1.12	.....	0.78	0	5	10	19	2	n.	C. McGhie.
Milford	Beaver	4,962	5	73.0	.....	102	7	44	28	50	1.00	.....	0.50	0	2	22	1	8	nw.	F. J. Bandreau.
Mills	Juab	4,911	1	.....	.....	.....	.....	.....	.....	.....	0.82	.....	0.44	0	3	.....	.....	.....	.....	Geo. McCune.
Millville	Cache	4,848	18	.....	.....	.....	.....	.....	.....	.....	0.78	+ 0.34	0.30	0	8	8	19	4	s.	Fred Yeates.
Minersville	Beaver	5,070	11	.....	.....	.....	.....	.....	.....	.....	0.70	− 0.03	0.28	0	7	10	20	1	sw.	Fred R. Pryor.
Modena	Iron	5,479	12	69.8	+ 0.1	95	10	44	26	50	0.81	− 0.45	0.48	0	4	14	13	4	sw.	U. S. Weather Bureau.
Morgan	Morgan	5,068	8	66.6	.....	91	6	39	12	45	0.26	.....	0.15	0	2	.....	.....	.....	.....	E. O. Kingston.
Moroni	Sanpete	5,519	5	67.6	.....	90	6	45	12	36	0.90	.....	0.35	0	8	11	13	7	sw.	B. F. Eliason.
Mosida	Utah	4,510	1	72.2	.....	98	11†	45	12†	53	1.05	.....	0.95	0	2	27	0	4	.....	L. B. Curtis.
Nephi (near)	Juab	5,119	8	70.0[f]	.....	96[f]	6	43[f]	11	43[f]	0.15	.....	0.06	0	5	.....	.....	.....	.....	Exp. Station.
New Castle	Iron	5,150	1	.....	.....	.....	.....	.....	.....	.....	0.75	.....	0.47	0	3	.....	.....	.....	.....	T. W. Jones.
Oak City	Millard	4,900	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Peter Nielson.
Ogden	Weber	4,310	42	67.6	− 6.3	92	4	43	12†	47	0.33	+ 0.07	0.19	0	4	11	8	12	w.	A. Van de Graaff.
Panguitch	Garfield	6,560	1	62.4	.....	94	5	37	14	50	1.92	.....	0.70	0	10	16	5	10	s.	Harry L. Stremble.
Park City	Summit	7,000	8	53.8	.....	86	25	21	7	52	7.06	.....	2.22	.....	10	3	17	11	.....	Gertrude Evans.
Park Valley	Boxelder	5,200	2	.....	.....	.....	.....	.....	.....	.....	0.77	.....	0.35	0	5	21	3	7	se.	C. W. Goodliffe.
Parowan	Iron	5,970	22	68.0	− 3.0	95	5†	42	15	48	0.95	− 0.08	0.41	0	4	10[i]	9[i]	3[i]	.....	Alex Matheson.
Payson	Utah	4,637	9	.....	.....	.....	.....	.....	.....	.....	0.55	.....	0.33	0	4	10	17	4	sw.	D. L. Coombs.
Pelican Point	do	4,600	1	.....	.....	.....	.....	.....	.....	.....	0.38	.....	0.38	0	1	21	10	0	.....	B. M. Mendenhall.
Pine Cliff Ranch	Summit	8,250	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. E. Leavitt.
Pinto	Washington	5,907	15	63.3[d]	− 3.3	92[d]	5†	35[d]	11	51[d]	1.97	+ 0.85	1.43	0	3	13[b]	9[b]	7[b]	s.	J. H. Harrison.
Plentiful	Tooele	4,262	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. L. Drumm.
Promontory	Boxelder	4,913	38	.....	.....	.....	.....	.....	.....	.....	2.80	+ 2.59	1.00	0	5	.....	.....	.....	.....	F. C. Houghton.
Provo	Utah	4,532	19	69.2[e]	− 4.1	96[e]	6	42[e]	6†	54[e]	0.46	+ 0.18	0.25	0	4	22	9	0	.....	A. J. Hughes.
Randolph	Rich	6,442	9	.....	.....	.....	.....	.....	.....	.....	1.52	.....	0.75	0	8	18[a]	3[a]	9[a]	.....	Wm. Rex.
Revier	Salt Lake	5,066	2	.....	.....	.....	.....	.....	.....	.....	1.50	.....	0.89	0	5	.....	.....	.....	.....	E. L. Terry.
Richfield	Sevier	5,350	19	70.0[a]	− 0.5	96	1†	42[b]	27	51[b]	0.64	+ 0.06	0.34	0	6	13[d]	0[d]	13[d]	.....	P. A. Westman.
Richmond	Cache	4,529	1	.....	.....	.....	.....	.....	.....	.....	1.09	.....	0.38	0	6	6	18	7	.....	J. R. Thompson.
Sahara	Iron	5,209	0	71.9	.....	100	6†	42	26	52	0.42	.....	0.15	0	5	21	9	1	sw.	Earl Markwith.
Saltair	Salt Lake	4,220	9	73.0	.....	87	6†	51	4†	31	0.52	.....	0.19	0	8	.....	.....	.....	.....	E. J. Bench.
Salt Lake City	do	4,360	39	73.5	− 2.7	97	6	54	12	34	0.55	+ 0.01	0.17	0	8	15	14	2	s.	U. S. Weather Bureau.
Scipio	Millard	5,260	18	69.0	− 0.9	94	6	36	12	54	1.05	+ 0.36	0.37	0	6	9	9	13	sw.	Thomas Memmott.
Showell	Boxelder	4,650	1	66.1	.....	93	6†	35	12	49	2.19	.....	0.80	0	8	19	12	0	.....	Richard Ilgner.
Silver City	Juab	6,127	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. L. Stark.
Smyths	Beaver	4,900	1	.....	.....	.....	.....	.....	.....	.....	1.71	.....	1.50	0	3	.....	.....	.....	.....	V. Waddoups.
Soldier Summit	Utah	7,454	12	58.0	− 4.3	85	7†	27	2	52	1.47	+ 0.92	0.68	0	6	10	14	7	.....	Geo. A. Boyd.
Spanish Fork	do	4,585	4	71.8	.....	93	8†	46	12	42	0.62	.....	0.39	0	3	17	7	7	.....	Reclamation Service.
Springvale	Juab	.....	.....	67.6	.....	96	6	42	1	45	0.40	.....	0.20	0	2	27	3	1	.....	Jas. Coleman.
Strawb'ry Tun'l West	Utah	7,500	5	60.6	.....	88	6	35	12	44	3.43	.....	1.88	0	7	14	9	8	.....	Reclamation Service.

TABLE 1.—*Climatological data for July, 1913. District No. 10*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Utah—Continued.																				
Thistle	Utah	5,075	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Thorgierson.
Tooele	Tooele	4,900	17	68.8	− 4.6	90	6	49	1†	36	2.33	+ 1.72	0.85	0	12	3	5	23	s.	E. A. Bonelli.
Utah Lake P. S	Utah	4,500	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. A. Knight.
Vernon	Tooele	5,500	2	.....	.....	.....	.....	.....	.....	.....	2.36	.....	0.72	0	7	11	20	0	sw.	Glynn Bennion.
Wendover	do	4,237	1	75.8	.....	99	9	45	26	42	0.65	.....	0.60	0	3	.....	.....	.....	.....	J. S. Cooper.
Whiskey Creek	Millard	4,850	2	.....	.....	.....	.....	.....	.....	.....	0.20	.....	0.20	0	1	.....	.....	.....	.....	George Stevens.
Winder	Garfield	8,000	0	.....	.....	.....	.....	.....	.....	.....	1.96	.....	0.40	0	8	.....	.....	.....	.....	Rollo Adair.
Woodruff	Rich	6,500	10	59.0[i]	− 1.6	87[i]	6†	28[i]	1†	53[i]	1.30	+ 0.69	0.35	0	7	12[b]	10[b]	1[b]	sw.	A. L. Eastman.
Oregon.																				
Burns	Harney	4,157	22	68.6	+ 2.8	95	20	34	12	56	1.99	+ 1.78	1.25	0	5	21	4	6	w.	J. C. Welcome, jr.
Cliff	Lake	4,300	6	59.8	.....	91	18	25	13	52	1.17	.....	0.72	0	4	17	13	1	nw.	John C. Green.
Paisley	do	4,209	10	63.6	.....	88	8	34	13	40	2.34	.....	1.10	0	6	21	5	5	n.	C. M. Sain.
Silver Lake	do	4,700	16	61.2	− 3.4	94	20	29	17	45	1.84	+ 1.34	1.10	0	4	18	12	1	sw.	G. W. Marvin.
California.																				
Bridgeport	Mono	6,500	0	59.0	;	88	5†	32	16	50	1.59	.....	0.36	0	11	8	6	17	sw.	A. F. Scott.
Cathedral Park	Eldorado	6,400	0	58.2	.....	85	5	38	10	35	2.12	.....	1.00	0	12	6	4	21	s.	Carl Fluegge.
Tahoe	Placer	6,240	2	57.8	..... ;	85	12	33	4	48	1.36	.....	0.34	9	18	8	5	....	w.	R. M. Watson.
Truckee	Nevada	5,918	41	60.8	− 4.6	85	11†	38	22†	44	2.20	+ 2.04	1.00	0	6	17	1	13	.....	Southern Pacific Co.
Nevada.																				
Austin	Lander	6,594	24	66.2	− 2.9	90	5†	42	27†	45	1.60	+ 1.21	0.49	0	5	20	1	10	se.	F. O. Booe.
Battle Mountain	do	4,843	42	70.2	− 5.0	102	8	42	13	53	1.64	+ 1.52	0.60	0	8	18	5	8	.....	Southern Pacific Co.
Beowawe	Eureka	4,905	42	66.5	−10.7	98	7	36	5†	59	2.12	+ 1.91	1.00	0	5	18	9	4	.....	Do.
Carlin	Elko	5,232	42	69.2	− 2.0	105	8	35	11	63	1.10	+ 0.94	0.50	0	3	.....	.....	.....	.....	Do.
Cherry Creek	White Pine	6,450	5	66.5	.....	96	6	42	4	45	2.10	.....	0.79	0	10	18	6	7	w.	J. H. Leishman.
Clover Valley	Elko	6,000	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	I. F. Wiseman.
Columbia	Esmeralda	5,750	6	70.2	.....	97	6†	51	14	42	1.03	.....	0.35	0	9	21	8	2	se.	A. Booth.
Dry Farm	Elko	5,600	1	65.8	.....	87	5†	39	13	42	0.88	.....	0.40	0	7	.....	.....	.....	.....	Walfrid Sohlman.
Elko	do	5,432	42	66.9	− 4.0	102	5†	31	14	65	1.10	+ 0.84	0.50	0	3	17	3	11	sw.	Western Pacific Co.
Eureka	Eureka	6,500	15	65.6	− 6.5	91	5	41	27	45	1.42	+ 0.89	1.03	0	9	10	10	11	s.	Clay Simms.
Fallon	Churchill	3,965	19	70.8	− 2.7	99	5	42	14	50	1.52	+ 1.43	0.83	0	8	14	7	10	w.	U. S. Experiment Station.
Fernley	Lyon	4,200	40	71.2	− 6.7	98	5†	39	14	51	0.75	+ 0.53	0.75	0	1	19	7	5	w.	Mrs. G. A. Steele.
Gardnerville	Douglas	4,830	22	65.0	− 3.1	90	5†	39	5†	51	1.77	+ 1.66	1.03	0	5	18	4	9	w.	Forest Service.
Gerlach	Washoe	3,931	0	68.4	.....	96	20	30	18	65	0.27	.....	0.22	0	2	15	0	16	nw.	Western Pacific Co.
Geyser	Lincoln	6,055	9	65.1	.....	101	31	25	11	65	0.20	.....	0.20	0	1	19	12	0	s.	Mrs. J. F. Wambolt.
Glenbrook	Douglas	6,420	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. C. Henningsen.
Golconda	Humboldt	4,697	34	70.7	− 5.6	99	5	40	13†	45	4.51	+ 4.45	2.00	0	10	10	9	12	w.	Southern Pacific Co.
Halleck	Elko	5,631	20	65.5	− 4.2	93	6†	39	3†	50	0.87	+ 0.66	0.50	0	3	14	11	6	w.	Do.
Jean	Clark	2,074	5	82.4	.....	110	11	53	24	41	.....	.....	.....	0	....	13	11	7	nw.	Salt Lake Route.
Lahontan	Churchill	4,200	1	74.9	.....	100	8	51	13	39	0.54	.....	0.19	0	7	17	12	2	w.	U. S. Reclamation Service.
Lewers Ranch	Washoe	5,500	25	66.0	− 1.7	92	10	42	2†	44	1.42	+ 1.24	0.62	0	4	12	16	3	.....	Ross Lewers.
Lida	Esmeralda	6,037	0	66.9	.....	91	12	45	25	38	1.48	.....	0.62	0	6	20	8	3	se.	L. F. Detwiler.
Lovelock	Humboldt	3,977	19	68.9	− 7.6	96	6†	40	1	53	2.16	+ 2.06	1.13	0	6	15	15	1	sw.	A. P. Tilford.
McDermit	do	4,709	23	66.0[d]	− 7.7	90[d]	8	41[d]	15	40[d]	1.75	+ 1.51	0.85	0	7	.....	.....	.....	w.	F. M. Bullock.
McGill	White Pine	6,338	22	69.2	+ 2.2	97	5	45	27†	44	2.30	+ 1.77	0.63	0	13	16	12	3	s.	R. E. Middagh.
Millett	Nye	6,002	5	67.4	.....	94	5	41	30†	49	0.38	.....	0.12	0	4	14	8	9	s.	Fred J. Jones.
Mina	Mineral	4,600	6	71.2	.....	102	12†	41	10†	50	2.67	.....	1.42	0	3	15	0	16	.....	Southern Pacific Co.
Oasis Ranch	Esmeralda	5,106	0	71.0	.....	98	5	47	26	45	0.95	.....	0.31	0	7	18	10	3	se.	A. S. Patterson.
Potts	Nye	6,990	20	63.4	− 7.2	93	8	36	26†	49	2.36	+ 1.77	0.60	0	8	6	6	19	s.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	11	68.0[f]	− 1.0	96[f]	9	41[f]	4	48[f]	0.30	+ 0.12	0.27	0	2	.....	.....	.....	n.	F. M. Payne.
Rebel Creek	do	.....	1	67.7	.....	93	19†	38	14	41	0.41	.....	0.28	0	3	15	8	8	sw.	E. J. Hyatt.
Reno	Washoe	4,532	42	68.6	+ 1.1	98	5	43	15	45	1.75	+ 1.61	1.11	0	10	16	10	5	w.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Reclamation Service.
Tecoma	Elko	4,812	35	63.4	−10.8	98	9	27	4	63	0.67	+ 0.49	0.29	0	10	9	14	8	sw.	Southern Pacific Co.
Tonopah	Nye	6,090	8	70.2	.....	92	12	48	26	32	0.16	.....	0.05	0	5	13	16	2	se.	U. S. Weather Bureau.
Wells	Elko	5,631	41	64.8	− 6.3	94	6†	26	14	65	0.57	+ 0.19	0.32	0	3	15	14	2	.....	Southern Pacific Co.
Winnemucca	Humboldt	4,432	34	69.2	− 2.4	96	5	42	14	49	1.55	+ 1.38	0.85	0	10	17	4	10	sw.	U. S. Weather Bureau.

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 10, Great Basin.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																															
Border	Bear				.29					T.												1.48		.86			.03	.03			.28		2.97
Cokeville	do			T.	.20						.14											.11	.78	.23					.10		.18		1.74
Evanston	do				.22					.04								T.				T.	.38	.91					T.	.06	.40		2.61
Idaho.																															
Geneva	Bear			.12																		.05	.87				.72	.08				1.84
Grace	do																														
Paris	do																		.45					.12			.10					0.76
Weston	do				.41						.15							.06							.14	.10	.17	.17			.07		1.27
Utah.																															
Alpine	G. S. Lake																							.45									0.45
Beaver	Sevier Lake							.10	T.	.09							.07	T.	.33	.04	.28	.03	.40	.13			.08					T.	1.55
Black Rock	do																							.13									0.13
Brigham City	Gt. Salt Lake			.07	.03															.01				.07	.06						.06		0.30
Burrville	Sevier Lake							.16		.04	.02					.06	.27	.21	.17	.09		.04	.90										1.96
Castle Rock	G. S. Lake				.15			.04		.02							.02	.04				.45	.06	.65	.03	T.	.03	.02		.10			1.61
Cedar City	Desert							.08	.15	.04								.02	.06	.02	.30		.46										1.13
Center	do									T.								.20			.20	.16	.06	.27	.07			.08	.09				1.13
Clarkston	G. S. Lake										.10																.25						0.35
Corinne	do																T.	T.	T.														T.
Deseret	Sevier Lake																		T.					.35									0.35
Elberta	G. S. Lake						T.	T.	T.	.02	T.			T.				.10	.12		T.	.06		.50				T.					0.80
Enterprise	Desert								.09									.05	.04	.49		.05	.45	.04									1.21
Erekson	do								.08	.08						.02		.15	.41		.03			.34									1.11
Farmington	G. S. Lake			T.														T.		T.			T.							T.			T.
Fillmore	Sevier Lake							.07	T.		.20						T.		.01	.10			.01	.65				T.					1.04
Garland	G. S. Lake			.28				.25		.04								.02					2.20	.23						.02			3.04
Garrison	Desert			T.				.10	T.	T.							T.		T.	T.	T.		26						T.				0.36
Government Creek	do			T.	.02						.04			T.			T.	T.	T.	.28	.02	.10	T.	.10	.15	T.	T.	T.	T.				0.71
Granger	G. S. Lake																								.50			T.	T.	T.			0.50
Grantsville	do				.25																	12		.12	1.10	.01			.02		.01		1.63
Grouse Creek	Desert			T.				T.			.07							T.					T.	.04	1.55	.52	.03	.31	.02	.32	.28		3.14
Heber	G. S. Lake				.10		T.			.10									.30	T.	.12	.05	.10	.25				.08	T.				1.10
Henefer	do				.27						.25						T.		.35	.07			.30	.75				.08	.02		T.	.03		2.12
Hooper	do								T.									.36						.70									1.06
Ibapah	Desert						T.	T.	T.	.06										.47	.15	.15	T.	.65					.12		.46		2.06
Ibex	do																																
Iosepa	do				.22		T.		T.	T.												.15		.50		T.							0.87
Junction	Sevier Lake							T.		T.						.03			.07	.09		.06		.05									0.90
Kanosh	do																.04		.02	.01				.12									0.19
Kelton	G. S. Lake								.42																.30	.10		T.		.12			0.94
Lemay	Desert						.04	.07		.36													.05		T.	T.	T.		.04				0.56
Levan	Sevier Lake							.04	T.	.03							T.	.02	T.			.04	.13	.14									0.40
Logan	G. S. Lake			.37						.05								.27						.42	.23	.05	.31	.12	.07	.04	.05		1.98
Low	Desert																						.50	1.00									1.50
Lucin	do			.14				.29	.25	.14											T.	1.05	.14	.30	.05		T.	T.	.05	.11			2.52
Manti	Sevier Lake						T.	.09		.03				.04				.09	T.	T.				.15									0.40
Maple Creek	G. S. Lake									.15				.23			T.	.01	T.	.02	.08			.70	T.	T.							1.19
Marion	Gt. Salt Lake																																
Marysvale	Sevier Lake																																
Meadowville	Gt. Salt Lake				.15						.05							T.	T.					.60		T.	T.				T.		0.80
Midlake	do			T.	.10						T.									T.		T.		1.10									1.20
Midvale	do			.09															.14	T.	T.	.03	.08	.78		T.	T.						1.12
Milford	Sevier Lake																										.50			.50			1.00
Millville	Gt. Salt Lake			.30						.03								.06				T.		.09		.03	.10	.11			.06		0.78
Mills	Sevier Lake						T.		.44	T.	T.							T.	T.	T.	T.		.22	.16		T.							0.82
Minersville	do							.02	.03	T.								T.	T.	.01	.10	.23	.28	.03				T.					0.70
Modena	Desert								T.									T.	.23	.07		T.	.48	T.			T.	.03					0.81
Morgan	Gt. Salt Lake				.11																			.15									0.26
Moroni	Sevier Lake							.16			.06							.03	.06	T.	.15	T.	T.	.35		T.	T.	.06	.03				0.90
Mosida	Gt. Salt Lake																							.95	.10			T.					1.05
Nephi (near)	do							T.	.02	.05													.06	.01				.01					0.15
New Castle	Desert																		.19	.47		.09											0.75
Oak City	Sevier Lake																																
Ogden	Gt. Salt Lake			.19														.09			.01	.04											0.33
Panguitch	Sevier Lake								.12	.06						T.	.09	.12	.24	.22	.02	.70	.04				T.	.31				T.	1.92
Park City	Gt. Salt Lake	.03		.01			.07	1.23	2.09	.04		.35			.07			.95	2.22														7.06
Park Valley	Desert					T.		.10																.35	.02		.05			.25			0.77
Parowan	do							.19	.05	T.									.30					.41									0.95
Payson	Gt. Salt Lake			T.										.06	.12				T.				T.	.33	.04				T.				0.55
Pelican Point	do																							.38									0.38
Pine Cliff Ranch	do																																
Pinto	Desert																	T.		.38			1.43	.16									1.97
Plentiful	Gt. Salt Lake																																
Promonotory	do			.20			.80						.20				.60						1.00										2.80
Provo	do				T.			.04	T.		.03			T.					T.				.25	T.	.14	T.							0.46
Randolph	do			.03		.05															.16	.75	.09				.09	T.	.16	.19			1.52
Revier	do			.14																		.06	.35	.89								.06	1.50
Richfield	Sevier Lake							.03	.15							.04	.06		.02					.34									0.64
Richmond	Gt. Salt Lake			.38						.17							.01							.15				.23		.15			1.09
Sahara	Desert							.09									.06	T.	T.	T.	.02	.15			T.			.10					0.42
Saltair	Gt. Salt Lake				.20														.03		.02	.03	.19	.01			T.		.02	.02			0.52
Salt Lake City	do			.12	T.		T.												.12	.03		.04	.03	.17			T.		.02	T.	.02		0.55
Scipio	Desert								T.		.10			T.				.37	T.	.17		T.	.05	.27		T.						.06	1.05
Showell	do			.13						.12														.53	.20	.06	.80	.23	.12				2.19
Silver City	do																																
Smyths	do						1.50		T.				T.				.20	T.				T.		.01			T.		T.	T.		T.	1.71
Soldier Summit	Gt. Salt Lake									.27									.21	.68		.06		.20	T.	.05		T.					1.47
Spanish Fork	do													.21	.18		T.	T.	T.	T.	T.			.23	T.		T.	T.	T.				0.62
Springvale	Sevier Lake								.20															.20									0.40
Strawberry Tunnel	Gt. Salt Lake													.19					.34	T.	.47		1.88	.13	.02			.40					3.43
Thistle	do																																
Tooele	do				.20														T.	.17	.11	.54	.12	.85	.05		.05	.07	.05	.10	.02		2.33
Utah Lake P. S.	do																																
Vernon	Desert			T.			T.		.72	T.	.39			T.	T.	T.	T.	T.	.24		.32	.18	.28	.23	T.			T.	T.				2.36
Wendover	do	T.																.02						.60	.03	T.							0.65
Whiskey Creek	do																							.20									0.20
Winder	Sevier Lake								.10									.30	.32		.40	.27	.31	.25				.01					1.96
Woodruff	Gt. Salt Lake			.10			.20			T.	.10											.30	.15				T.	.35			.10		1.30

TABLE 2.—*Daily precipitation for July, 1913. District No. 10, Great Basin*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Oregon.																																	
Ana River	SE. drainage			.08																		.07	.45	.09	1.22	.42							2.33
Bear Valley	do			.56	.04																.13	.25			.83								1.81
Burns	do			.15																			.15	1.25	.17	.27							1.99
Burns Mill	do																																
Christmas Lake	do			.20											T.	.01					.02		.32		.85	.19	.01						1.60
Cliff	do			.19																	.06				.72	.20							1.17
Diamond	do	T.		.18	.06																			.08	.71	.73	.32						2.08
Embody	do			.23																		.20	.15	.23	.36	.10							1.27
Fort Rock	do			.18																	T.	T.	T.	.45	.26								0.89
Paisley	do			.07																	.28		.04	.46	1.10	.39							2.34
Riley	do			T.																		.10	.25	.80	.02								1.17
Seneca	do																																
Silver Lake	do			.15																				.49	1.10	.10							1.84
Valley Falls	do																								1.00	.48							1.48
California.																																	
Bijou	Truckee																																
Boca	do																																
Bridgeport	East Walker																		.10	.08	.18	.03	.10		.36		.30	.04	.06	.15	.19		1.59
Cathedral Park	Truckee														.10			.03	.08	.11			.06	.04	1.00	.50	.05	.01	.03		.11		2.12
Deer Park	do																																
Hobart Mills	do																		.04	.01	.11	.09	.75	1.75	.01	.36	.10	.21	.21	.40			4.04
Lundy	East Walker																			1.10			.60						.65				2.35
McKinney	Truckee																																
Markleeville	East Carson																		.05				.63	.28	.40	.03	.26	.38	T.	.05		T.	2.03
Shields Ranch	East Walker																		T.	.02	.01	.10	.17	.40	.11	.03	T.	.06	.04	.19			1.13
Silver Creek	East Carson																		.10	.05			.60	.32	.20	.50	.42	.30	.06	.20		.25	3.00
Tahoe	Truckee			T.														T.		.03	.23	.16	.20	.34	.06	.04	.10	.20					1.36
Tallac	do																		T.	T.	.05	T.	.15	1.55	.60	.55	T.	.10	T.	.05	T.	.05	3.10
Truckee	do																		T.	T.	T.	T.	1.00	.25	T.	.50	.10	T.	.10	.35	T	T.	2.20
Woodfords	West Carson																			T.	.08	.14	.41	.28	.16	.35	.18	T.	.25	.12	.30		2.27
Nevada.																																	
Arthur	Humboldt			.20																			*	.60	.10	.10	T.	T.	.10				1.10
Austin	Reese								.10														.46	.20			.49		.35				1.60
Battle Mountain	Humboldt			.05			T.															.31	.18	.06	.60	.30	.09	.05				1.64
Beowawe	do																				T.	.06	.50	1.00		.50	.06	T.	T.				2.12
Carlin	do																							.40		.50	.20						1.10
Cherry Creek	do							.12	.05	.30										.04	.34	.45	.01	.51			T.	.08	.20				2.10
Clover Valley	do																																
Columbia	Desert						T.		T.	.11									.03	.14	.21	.02	.35					.15	.01	.01			1.03
Dry Farm	Humboldt			.03					.09											.04			.20	.40				.06	.06	T.			0.88
Elko	do							.20													T.	.40	.50	T.	T.					T.			1.10
Eureka	do			T.			.02											T.	T.	.05	.03		.57	.46	.23		.02	.02	T.	.02			1.42
Fallon	Carson						.07												T.	T.	T.	T.	.04	.83	.01	.13	.28	.13	.03	T.			1.52
Fernley	Truckee																		T.	T.		T.		.75		T.	T.						0.75
Gardnerville	Carson																		.04			.24	1.03		.03	.43							1.77
Gerlach	Desert																							.22		.05							0.27
Geyser	Humboldt						T.	T.							.20																		0.20
Glenbrook	Truckee																																
Golconda	Humboldt			.05																1.00	.40	.30	2.00	.60	.03	.01			.01			.01	4.51
Halleck	do			.27					T.															.50				.10					0.87
Hylton	do																						1.65					.23					1.88
Jean	Desert																																
Lahontan	Carson																			.04		.03	.18	T.	.19	.06		.03	.01	T.			0.54
Lewers Ranch	Truckee																		T.	.05	T.	.40	.62					.35					1.42
Lida	Desert						T.											T.	.23	.15	.32	.06	.62						.10				1.48
Lovelocks	Humboldt						.02														.09			1.13	.17		.68		.07				2.16
McDermit	do			.26																T.	.06	T.	.11	.85	.11	T.	.09	.27	T.				1.75
McGill	do							*	.62	.10									*	.21	.48	.15	.16	.27	.02			.05	.09	.13	.02		2.30
Metropolis	do			.03				T.	T.	T.										.35	T.	T.	T.	.04	.07	T.	T.	T.		.12			0.61
Mill City	do																					.75		1.04	.25	.25							2.29
Millett	Reese							.05											T.	T.	.12	T.		T.				.09	.12				0.38
Mina	Desert						.50	.75												1.42							T.						2.67
North Fork	Humboldt			.18																T.		.10		.64	.06		.06	.07	.10				1.21
Oasis Ranch	Desert							T.										T.	.07	.15	.26	.04	.31	.04		.08	T.						0.95
Potts	Reese						.02		.50	T.									.02	.50	.60	.02	.40						.30				2.36
Quinn River Ranch	Humboldt			.27																					.03								0.30
Rebel Creek	do			.08																	T.	T.	T.	.28	.05	T.	T.	T.	T.				0.41
Reno	Truckee																		.09	.07	.01	.22	.20	.91	.05	.01	.16	T.		.03			1.75
Rose Creek	Humboldt			.14																	.18			1.35		.40		.50	.46				3.03
Smith	West Walker					T.													.10	1.45		.38	.32	.33	T.	.08	.33	.39		.15			3.53
Soda Lake	Carson																																
Spooners Ranch	Truckee	T.	T.				T.								.04					.06		.07	1.00	.26	.40			T.	T.				1.93
Sweetwater	East Walker																																
Tecoma	Humboldt			.02					.02	.27													.02	.01	.03	.01	.04	.22	.03				0.67
Tonopah	Desert								.02									T.	.04	.02	T.		.03				T.	.05					0.16
Wabuska	Walker																																
Wells	Humboldt			.05																				32						.20			0.57
Willow Point	L. Humboldt																																
Winnemucca	Humboldt			.26				.01												T.	.13	.09	.21	.65	.11	T.	.03	.03		.03			1.55

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 10, Great Basin.*

Date.	Burns, Oreg.		Nevada.																									
			Cherry Creek.		Elko.		Eureka.		Fallon.		Jean.		Lovelock.		Millett.		Mina.		Rebel Creek.		Reno.		Tecoma.		Tonopah.		Winnemucca.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	80	35	84	46	87	36	85	48	91	47	105	67	87	40	90	45	96	47	79	43	82	47	85	34	89	60	85	49
2....	80	46	86	54	87	40	82	44	84	48	103	66	89	42	85	45	97	49	73	44	80	46	85	40	85	55	81	51
3....	78	50	82	42	52	42	77	49	83	52	102	69	80	48	84	57	95	48	70	51	72	57	85	38	86	59	71	51
4....	94	50	75	47	87	40	81	43	82	45	106	72	85	49	86	45	96	49	78	46	89	45	83	27	83	52	82	45
5....	92	48	90	45	102	37	91	47	99	49	108	73	90	47	94	45	99	50	91	54	98	53	85	33	91	64	96	48
6....	90	50	96	55	102	37	89	62	95	57	106	78	96	47	90	55	100	51	92	57	89	59	88	40	92	72	93	54
7....	88	54	90	56	98	48	90	56	97	57	105	77	95	56	93	53	98	49	92	56	92	58	95	45	91	67	94	60
8....	90	48	87	58	100	47	87	57	96	58	108	73	95	72	90	54	99	49	91	56	93	57	95	45	91	65	94	56
9....	93	46	89	52	94	47	87	55	97	56	107	72	96	55	92	54	99	49	90	56	87	55	98	47	89	65	94	54
10....	92	47	86	52	95	47	86	55	94	49	109	76	93	53	93	51	90	41	87	55	92	52	95	42	89	61	89	56
11....	91	45	78	54	89	40	82	44	88	58	110	75	89	57	84	54	90	41	79	50	90	53	92	43	86	60	84	52
12....	90	34	88	45	94	32	90	45	98	48	109	68	95	42	93	51	102	53	89	49	89	54	97	34	92	64	94	45
13....	80	45	89	59	93	44	88	52	87	54	102	77	85	43	84	54	102	54	82	50	84	59	95	40	89	64	79	51
14....	79	44	88	52	88	31	86	41	89	42	99	76	85	46	93	44	100	59	79	38	78	49	90	34	85	60	82	42
15....	82	42	85	53	89	41	84	44	86	44	100	68	85	47	91	56	99	58	79	46	84	43	85	32	85	53	82	46
16....	90	60	87	49	93	58	88	54	90	47	100	71	87	56	89	45	97	55	82	47	86	49	88	35	87	64	88	47
17....	94	64	86	58	99	38	85	50	94	49	89	68	94	48	86	49	94	54	90	49	91	51	90	44	85	61	92	52
18....	94	52	87	60	92	47	80	56	89	62	90	65	90	54	89	43	92	50	91	56	74	59	92	40	66	58	93	60
19....	94	62	74	57	88	44	83	54	91	60	91	69	87	52	83	45	81	60	93	56	87	58	90	44	77	56	89	58
20....	95	66	76	54	86	52	82	55	90	56	91	67	90	55	75	61	75	49	87	57	87	57	87	44	78	57	90	60
21....	90	60	79	59	96	46	80	54	90	59	90	65	92	53	80	50	78	52	89	54	86	60	90	43	76	57	89	57
22....	88	62	79	57	92	48	83	57	88	60	82	65	86	51	80	50	85	58	87	59	82	58	90	43	66	57	84	62
23....	89	58	66	55	90	50	70	55	78	61	84	56	79	56	80	50	84	57	81	60	70	57	91	50	73	56	74	60
24....	86	55	74	52	76	52	71	56	80	58	91	53	79	52	80	58	81	55	75	57	80	51	85	46	73	54	78	56
25....	85	48	77	48	78	54	75	45	81	52	90	56	79	48	79	57	79	54	75	52	75	52	82	35	75	51	78	54
26....	86	46	74	49	80	45	72	43	79	52	81	60	75	46	80	48	78	52	76	52	77	49	82	35	68	48	78	52
27....	84	47	71	49	85	58	73	41	81	52	84	62	78	49	78	40	79	51	81	49	74	52	80	30	74	50	79	49
28....	82	40	62	48	85	48	73	46	83	53	87	60	79	50	76	49	83	54	80	54	80	49	80	36	74	53	82	51
29....	82	39	75	43	80	45	75	46	84	54	90	63	82	53	78	42	86	52	80	52	81	53	79	39	77	52	79	56
30....	85	45	82	50	90	40	82	46	86	56	98	56	87	56	85	41	89	52	79	51	85	52	78	35	80	55	83	54
31....	88	51	85	50	98	48	86	46	94	53	99	62	91	59	89	41	93	51	93	54	92	53	85	34	85	62	92	52
Mns..	87.5	49.6	81.5	51.5	89.2	44.6	82.0	49.2	88.5	53.2	97.5	67.3	87.1	50.7	85.5	49.4	90.8	51.7	83.5	51.9	84.1	53.1	87.8	38.9	81.8	58.5	85.4	52.9

Date.	Wyoming.				Idaho. Weston.		Utah.																					
	Border.		Evanston.				Corrine.		Deseret.		Fillmore.		Government Creek.		Meadowville.		Modena.		Ogden.		Parowan.		Provo.		Salt Lake City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	80	39	75	38	82	43	80	60	96	46	97	50	90	50	84	38	89	47	81	51	88	55	90	55	90	56
2.....	70	50	74	51	76	51	85	48	92	55	98	60	85	52	74	50	90	53	90	52	89	50	83	49	80	63
3.....	75	49	72	46	70	40	80	45	91	45	92	54	84	52	75	47	86	63	80	53	88	58	.....	.....	79	56
4.....	74	45	67	43	72	43	83	40	88	48	92	50	80	46	75	43	89	55	92	45	89	50	.....	.....	75	55
5.....	79	38	79	38	83	43	87	42	98	48	101	52	90	50	88	45	94	57	76	47	95	54	94	46	85	59
6.....	88	44	85	49	86	48	85	45	102	56	101	63	96	58	87	58	95	62	80	52	95	62	96	42	97	66
7.....	83	53	81	52	90	48	95	57	98	62	98	63	92	61	88	57	94	62	81	55	95	64	90	58	90	69
8.....	86	53	85	51	89	58	93	62	97	58	97	62	92	63	87	50	87	61	90	58	86	57	91	63	90	70
9.....	87	47	83	50	89	54	92	60	98	56	101	61	93	59	79	57	93	59	82	57	92	55	90	56	91	70
10.....	75	50	74	50	84	54	90	57	99	55	97	59	87	60	80	56	95	57	82	57	93	55	84	57	86	68
11.....	67	49	71	43	77	46	87	44	89	57	85	52	85	56	79	49	87	59	84	58	87	57	89	68	74	60
12.....	79	33	75	33	82	39	89	49	96	40	98	49	90	47	84	36	95	45	75	43	93	45	87	56	88	54
13.....	82	39	77	40	84	47	93	55	97	62	95	70	93	65	82	45	88	64	75	45	85	73	89	50	90	63
14.....	80	38	77	37	82	42	90	59	93	49	94	51	89	46	82	44	85	65	78	57	87	58	89	54	86	56
15.....	80	40	80	38	84	46	95	65	92	63	97	63	88	64	82	45	87	59	89	57	77	42	89	52	85	69
16.....	86	56	80	48	90	47	90	50	94	55	92	65	91	62	85	47	87	57	90	56	81	47	88	55	92	66
17.....	84	46	79	43	92	49	89	53	93	61	87	60	88	66	80	45	81	63	74	51	80	50	89	58	89	69
18.....	80	42	79	47	86	48	90	57	90	60	84	56	82	57	87	45	77	59	86	53	82	.....	89	58	84	64
19.....	81	42	77	54	90	59	91	68	90	56	86	57	82	60	86	43	81	55	89	58	80	50	84	56	85	67
20.....	84	43	74	52	88	53	90	65	90	60	89	59	85	61	86	50	81	57	87	57	84	52	.....	.....	86	67
21.....	86	45	75	48	87	55	90	59	87	61	82	60	84	64	84	50	82	60	88	58	79	56	88	56	87	67
22.....	79	57	77	50	86	55	93	60	90	60	82	59	84	61	83	52	76	58	86	58	75	55	87	59	85	66
23.....	78	54	69	52	79	59	91	62	80	59	75	58	75	60	83	54	75	55	79	55	76	54	79	51	78	62
24.....	76	55	70	51	81	57	90	65	85	51	84	56	82	52	76	55	78	47	82	49	78	48	83	46	83	61
25.....	76	48	70	41	81	67	84	52	82	50	86	55	82	55	77	45	77	45	83	45	79	51	84	42	82	60
26.....	71	42	67	38	77	44	86	55	85	56	84	53	81	55	74	42	71	44	82	45	74	52	81	42	79	57
27.....	74	40	66	42	78	43	84	50	83	49	81	49	79	52	79	40	73	46	79	50	78	48	78	42	79	57
28.....	75	44	70	39	79	48	82	51	85	54	88	48	81	52	75	39	78	45	82	49	79	46	83	46	82	60
29.....	78	46	71	40	82	51	80	55	85	50	87	54	83	52	71	48	78	47	83	55	80	56	84	49	85	60
30.....	70	49	68	47	76	51	86	60	88	50	83	53	79	59	68	48	84	47	80	43	83	52	78	44	75	60
31.....	78	33	76	35	83	38	85	47	94	49	84	50	87	48	75	35	86	55	88	49	89	48	86	44	85	57
Mns.....	77.8	45.2	74.3	44.7	82.7	49.2	87.9	54.7	91.2	54.2	90.2	56.5	85.8	56.0	77.8	47.0	84.5	55.1	83.0	52.2	84.4	51.6[a]	86.5[e]	51.9[e]	84.6	62.4

[a], [b], [e], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

July, 1913, was a month of nearly normal temperature; but warmer than July of the preceding year and not quite as warm as July, 1911, or July, 1910. In the matter of precipitation July, 1913, breaks all records for amount of precipitation in a midsummer month. The rain was heavy, although not of long duration. The average for the State as a whole was 0.46 of an inch, which is a departure of more than 0.40 of an inch above the normal.

On July 22d there was heavy rain in the central and northern counties. There were frequent thunderstorms throughout the month in the Sierra and tourists and campers experienced much unpleasant weather where usually extremely dry conditions prevail.

The water supply was somewhat augmented by the unusual rain; but the effect was only temporary and complaints of scarcity of water were common at the end of the month.

From an agricultural point of view weather conditions were fair. There was some slight damage to drying apricots and peaches but no injury to crops in general. Fortunately there were no prolonged periods of desiccating north winds. There was the normal amount of sunshine and less fog than usual on the coast.

TEMPERATURE.

The mean temperature for the State was nearly 1° below the normal. The following table gives the means and departures for each July from 1897 to 1913, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
	° F.	° F.		° F.	° F.
1897	74.5	+0.5	1906	76.8	+2.8
1898	81.4	+7.4	1907	73.1	−0.9
1899	77.9	+3.9	1908	76.4	+2.4
1900	75.9	+1.9	1909	71.2	−2.8
1901	76.0	+2.0	1910	75.5	+1.5
1902	72.8	−1.2	1911	74.1	+0.1
1903	71.2	−2.8	1912	71.0	−3.0
1904	72.2	−1.8	1913	73.1	−0.9
1905	74.8	+0.8			

The highest temperature recorded at any station was 119° at Heber on the 10th. The lowest temperature was 27° at Deer Creek on the 14th, which is 4° higher than the lowest recorded during the same month last year.

On July 11th unusually warm weather prevailed in the central counties of California. Maximum temperatures exceeding 110° were reported at many points. At St. Helena, Healdsburg, and other points in this section, the temperature reached 115°.

PRECIPITATION.

The rainfall was unusually heavy. All rainfall records for July were broken during the 48 hours of July 22–23, and there were constant showers in the mountains from the 22d to the 29th. The greatest monthly amount was 4.40 at Madeline and the greatest 24-hour amount was 2.15 inches at Macdoel. There was no rainfall at 31 stations.

The following table gives the average precipitation and departure from the normal for each July from 1897 to 1912, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
	Inches.	Inches.		Inches.	Inches.
1897	0.01	−0.03	1906	0.04	0.00
1898	T.	− .04	1907	.03	− .01
1899	T.	− .04	1908	.04	.00
1900	.03	− .01	1909	.05	+ .01
1901	.01	− .03	1910	.10	+ .06
1902	.07	+ .03	1911	.10	+ .06
1903	.03	− .01	1912	.06	+ .02
1904	.09	+ .05	1913	.46	+ .42
1905	.01	− .03			

SUNSHINE.

The following table gives the hours of sunshine and percentages of the possible:

Stations.	Hours.	Percentage of possible.	Stations.	Hours.	Percentage of possible.
Eureka	215	47	Sacramento	409	89
Fresno	405	90	San Diego	320	73
Los Angeles	307	70	San Francisco	301	67
Mount Tamalpais	407	91	San Jose	371	83
Red Bluff	372	82	San Luis Obispo	327	74

NOTE ON THE WEATHER AT POINT REYES.

By Mr. JAMES JONES, Observer.

During the past 22 years precipitation to the amount of 0.01 inch or more, for the month of July, has occurred only six times. Therefore the 24-hour rainfall of 0.13 on July 22–23 this year is to be considered rather remarkable. Hay crops in this vicinity had just been cut and not yet stacked when this unseasonable rain came on, but only slight damage resulted.

The monthly mean temperature was, with the exception of that for July, 1896, the highest July mean ever recorded. This high average was caused by slightly higher daily averages throughout the month, as there were no periods of exceptionally warm weather.

There were 21 days with dense fog, but this is not unusual at this station.

The first half of the month was somewhat windy, but after the 15th there was comparatively little wind, not one gale of 40 miles or over being recorded after that date.

Light haze was observed six times during the month. On July 12 there was a light haze all afternoon. The sunset was followed by a reddish-yellow glow and wisps of smoke, visible just above the haze.

NOTES ON THE RIVERS OF SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING THE MONTH OF JULY, 1913.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—The rivers in this watershed were generally lower than during any July of which there is a record. In the upper reaches of the Sacramento itself the river averaged slightly above the low water of 1910. From Colusa, however, southward to Walnut Grove the Sacramento averaged from 0.1 of a foot to nearly a foot below all previous low-water stages of which there is a record or a remembrance. At Sacramento City on the 23d the river reached a stage of 4 feet, which is the lowest ever reached in any month of which there is an authentic record.

While there were some heavy rains in the high regions of the Sierra Nevada during the month there was little effect noted in the run-off of the main western feeders or of the trunk stream, the greatest 24-hour rise observed being 0.8 of a foot in the American River.

Tides were common in the Sacramento River during the entire month and were felt for several miles above the mouth of the American. In one instance there was a tide of 1.4 feet in the river at Sacramento City.

Many sand bars have been uncovered during the present low water and, in some cases, channels have changed, making navigation difficult. During the extreme low water the steamer *Empress* struck bottom opposite the city wharf at Sacramento and was unable to reach her berth.

Steamboat men are complaining about the amount of water now being taken out of the river for irrigation purposes, and claim that between 60 and 70 pumps, with capacities ranging from 6 to 12 inch intake, are constantly at work in the Sacramento between the mouth of the American and that of the Feather.

San Joaquin watershed.—The Tuolumne River, while unusually low for the month, averaged about 0.9 of a foot above that of July, 1910. In all other streams the water was the lowest of any July since records have been kept. This was especially so of the Calaveras, which was practically dry during the entire month, and the lower San Joaquin, which averaged between 6 and 7 feet below the July normal and nearly a foot below the previous low water stage, which was in 1910.

FORECASTING THE WATER SUPPLY IN CALIFORNIA.

(From Weather Bureau records of precipitation.)

By Prof. ALEXANDER G. MCADIE.

The writer has in press a somewhat extensive memoir on the "Rainfall of California." [1] From the various records available it appears that no secular periodicity of wet and dry seasons can be found and that excessive rainfalls, also periods of prolonged drought, come and go irregularly. It also appears that there are certain definite relations between excess and deficiency in rainfall and the distribution of atmospheric pressure. Thus the character of a month, and sometimes of a season, is found to bear a direct relation to the position and intensity of certain pressure areas, which for lack of a better name have been called centers of action. This term we believe was originally used by de Bort and has been lately abbreviated by continental writers to action centers. As the term is somewhat awkward and lacks precision, the writer suggests the use of the term hyperbar for abnormally high seasonal pressure over a given district, and infrabar for a well-marked seasonal depression. The terms pleiobar and meiobar have been suggested by M. A. F. Prestel, but do not seem to be altogether appropriate.

A good illustration of this law of seasonal variation of precipitation and aberration of hyperbars and infrabars is found in the months of January and February, 1902. January, usually a wet month, was abnormally dry, the deficiency in precipitation for California determined by records from nearly 200 stations was approximately 33,000,000 acre-feet. This was a dry winter month and there was every prospect of a shortage of water for the following spring and summer. But what happened? There was a marked change in the position and intensity of the Aleutian low (the infrabar) and also in the location of the continental high (the hyperbar) with the result that February was abnormally wet and even in the short month there was an excess of practically 43,000,000 acre-feet.

The following table gives the approximate precipitation for California in million acre-feet:

	January.	February.	March.	Winter.
1897	22	49	33	104
1898	9	24	6	39
1899	29	4	51	84
1900	28	8	19	55
1901	42	50	9	101
1902	12	68	29	109
1903	38	15	48	101
1904	12	66	71	149
1905	36	35	43	116
1906	66	42	77	185
1907	63	38	89	190
1908	39	36	12	87
1909	135	67	28	230
1910	40	20	20	80
1911	110	29	50	189
1912	28	6	43	77
1913	42	17	18	77
	751	574	648	1,973
Mean	44	34	38	116

Attention is called to the winter of 1909, particularly January, when nearly three times the average amount of rain fell. As early as the end of January, notwithstanding floods, excessive runoff, and general waste, it was plain that there would be an abundance of water. Reference to the depth of snow on the ground shows how deep the snow cover was.

The present season (1913) is especially interesting because while January was a month of nearly average water supply, February and March gave only about half the normal precipitation. The amount of water which has fallen as rain is not sufficient for general need and must be supplemented from storage or ground sources.

The depth and extent of the snow cover in the mountains give in a general way a reliable index of the character of the season, the probable water supply, and the river stages. This frozen storage decreases in four ways: First, by melting or run-off; second, by evaporation; third, by percolation or seepage; and fourth, by absorption of forest cover. This water of vegetation in part is reevaporated from the leaf surface by the processes of transpiration; but so far as California is concerned the water is practically lost.

Of these four factors, the second, that is, evaporation, is as effective in dissipating snow as any of the others. There are certain thermodynamic reasons why a current of air in these latitudes moving east from sea level over

[1] To be published by the University of California.

the Coast Range and the Sierra Nevada should lose its load of water vapor in this passage, gaining heat in descending the eastern slope and becoming in effect a desiccating wind of the type of the chinook, foehn, or familiar norther. Such winds are not infrequent in California and some observations show that under such conditions the depth of snow is rapidly decreased, exceeding the normal rate of decrease for a still day, 300 per cent.

After the middle of March the first factor, or ordinary melting, becomes effective. In various publications the writer has discussed the normal rate of melting and given diagrams for comparing rates and seasons, so that the probable date of disappearance of the snow may be determined.

The third and fourth factors are troublesome and uncertain. The writer is of opinion that none of the present forms of measuring devices give reliable records for determining the seepage and the water of vegetation. In his opinion it will be necessary to employ seepage tanks or seasonal snow gages so arranged in the ground as to measure approximately the water of percolation.

In a rough way stream-flow measurements may be utilized for determining what percentage of the total depth of snow on the ground disappears to reappear in the form of run-off. For this purpose I have taken the only available gaging station in the watershed of the American River, Fairoaks (see Water-Supply Paper No. 298, U. S. Geological Survey), and compared the snow depth, the total precipitation at Summit, and the monthly run-off. The total precipitation is a truer measure of run-off than depth of snow, because of the reasons given above and in addition, the fact that the water content of the snow is and must always be an uncertain quantity, depending upon the age of the snow bank, the action of the wind in packing, the character of the mountain slope with regard to timber and brush, the temperature factor, and the original condition of congelation. The writer had once to deal with a snow bank at Summit 12 feet deep. No snow sampler or density gage measurements as ordinarily made would reliably give the water contents. Fortunately there were tunnels in the snow and samples could be obtained for the entire depth. Twenty inches of snow from the top of the pack when melted made 1 inch of water. Four inches of snow from the bottom of the pack when melted made 1 inch of water.

TOTAL PRECIPITATION AT SUMMIT.

	January.	February.	March.	Season.
	Inches.	*Inches.*	*Inches.*	*Inches.*
1907	13.50	4.38	27.36	45.24
1908	3.50	4.50	10.20	18.20
1909	29.44	8.94	4.60	42.98
1910	8.60	5.10	4.98	18.68
1911	28.90	5.30	10.63	44.83
1912	7.00	.46	6.10	13.56
1913	13.60	2.05	3.20	18.85

ESTIMATED RUN-OFF IN ACRE-FEET.

1907	255,000	822,000	1,520,000	2,597,000
1908	160,000	113,000	202,000	475,000
1909	1,490,000	861,000	397,000	2,748,000
1910	524,000	291,000	646,000	1,461,000
1911	855,000	589,000	799,000	2,243,000
1912	68,200	44,800	118,000	231,000
1913				

Attention is called to the amount of precipitation for the two seasons, 1912 and 1913, from which it is evident that the run-off must be small. The seasons of 1907, 1909, and 1911 indicate ample water and run-offs far above the normal.

The following notes are of interest in a general way in connection with the character of the precipitation:

February, 1907, snow very wet.

March, 1907, snow abnormally heavy.

January, 1908, a marked decrease in precipitation at levels above 3,000 feet.

January, 1909, abnormally heavy rain and snow. Also heavy run-off, possibly due to saturated condition of ground.

January, 1911, unusually heavy precipitation, but run-off light. Notwithstanding the fact that more rain fell in the drainage basin of the Sacramento Valley than during any previous January, the water courses were much below the normal. The explanation of this is that the rains were mostly in the nature of warm showers. There was less precipitation in the mountain sections than at sea level. Moreover, the precipitation in the mountain sections did not equal that of January, 1909.

One interesting and new feature comes out of this discussion, namely, that in certain storms in California there is not the usual increase in amount of precipitation with elevation; but on the contrary a maximum rate prevails below the 1,000-meter level. Ordinarily the precipitation increases with elevation up to nearly the 2-kilometer level. This is of some importance in connection with the selection of reservoirs.

TABLE 1.—*Climatological data for July, 1913. District No. 11, California.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oregon.																				
Klamath Falls	Klamath	4,100	24	64.2	− 3.9	90	8†	36	2†	40	1.37	+ 1.17	0.99	0	4	17	10	4	nw.	Augusta J. Hayden.
Lake View	Lake	4,825	30	61.6	− 5.0	86	8†	32	13	43	2.69	+ 2.43	1.14	0	5	17	7	7	s.	C. C. Gott.
Merrill	Klamath	4,070	8	64.2	.....	96	20	33	13	42	2.02	.....	1.62	0	6	22	0	9	.....	U. S. Reclamation Service.
Yonna	....do	4,146	6	61.1	.....	98	19	30	3	63	1.66	.....	0.89	0	4	15	6	10	w.	Ward Rueck.
California.																				
Alturas	Modoc	4,400	9	65.8	.....	94	5†	34	14	52	3.00	.....	2.00	0	8	19	7	5	w.	Prof. C. B. Towle.
Angiola	Tulare	208	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.
Antioch **	Contra Costa	46	34	76.7	+ 0.9	101	6	50	23	....	0.18	+ 0.18	0.12	0	2	29	0	2	.....	Southern Pacific Co.
Aptos **	Santa Cruz	102	28	65.5	+ 3.2	80	10	52	17	....	0.48	+ 0.47	0.43	0	2	23	4	4	nw.	Do.
Arrowhead Springs	San Bernardino	2,000	4	74.4	.....	101	5†	51	26	35	0.15	.....	0.10	0	2	26	4	1	.....	Dr. E. J. Erekson.
Auburn	Placer	1,360	42	73.8	− 3.0	98	8†	54	4	36	0.04	+ 0.03	0.04	0	1	28	2	1	ne.	Southern Pacific Co.
Avalon	Los Angeles	30	3	65.9	.....	74	7†	57	2†	15	T.	.....	T.	0	0	27	1	3	w.	T. S. Manning.
Azusa	....do	540	11	73.9	+ 0.5	102	7	53	1	45	0.01	+ 0.01	0.01	0	1	28	2	1	.....	A. P. Griffith.
Bagdad	San Bernardino	784	10	92.3	− 4.0	116	11†	60	24	39	0.00	− 0.26	0.00	0	0	31	0	0	.....	Santa Fe Co.
Bakersfield	Kern	404	24	79.7	− 5.6	116	6	49	4	62	0.43	+ 0.42	0.33	0	2	27	0	4	.....	Do.
Barstow	San Bernardino	2,105	10	84.2	+ 0.8	110	11	58	29†	38	0.35	+ 0.23	0.20	0	2	24	5	2	w.	E. L. White.
Berkeley	Alameda	317	26	63.6	+ 2.3	95	11	49	14	34	0.19	+ 0.17	0.10	0	2	14	7	10	sw.	State University.
Betteravia	Santa Barbara	.....	.....	67.2	.....	92	10	46	1	40	0.00	.....	0.00	0	0	21	10	0	w.	Union Sugar Co.
Biggs **	Butte	98	14	77.9	− 1.5	103	6†	55	3	....	0.20	+ 0.20	0.20	0	1	22	2	7	s.	Southern Pacific Co.
Bishop	Inyo	4,450	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Paul E. Lodge.
Bishop Creek	....do	8,500	3	58.2	.....	80	7†	39	24†	32	.....	.....	.....	.....	.....	9	8	14	.....	Do.
Blocksburg	Humboldt	1,700	7	66.7	.....	95	17	40	7	48	0.41	.....	0.27	0	2	19	5	7	nw.	Victor Hope.
Blue Canon	Placer	4,695	14	63.4	− 1.8	88	8†	42	4†	40	0.52	+ 0.52	0.40	0	2	24	2	5	.....	Southern Pacific Co.
Blythe	Riverside	268	4	85.3	.....	116	11	57	28	51	2.20	.....	1.15	0	3	18	5	8	s.	C. L. Suits.
Branscomb	Mendocino	2,000	13	64.6	− 2.1	98	11	39	2†	45	0.40	+ 0.28	0.40	0	1	22	5	4	n.	A. J. Haun.
Brawley	Imperial	− 105	4	86.7	.....	113	11	63	25	40	0.27	.....	0.27	0	1	.....	.....	.....	.....	M. D. Witter.
Burney	Shasta	3,300	3	63.4	.....	89	10†	34	14†	36	0.75	.....	0.37	0	4	16	9	6	w.	Mrs. M. D. Chambers.
Cahuilla	Riverside	3,600	2	.....	.....	.....	.....	.....	.....	.....	0.50	.....	0.44	0	2	.....	.....	.....	.....	Dr. W. L. Shawk.
Calexico	Imperial	0	8	87.0	.....	115	9	64	24†	45	0.11	.....	0.06	0	2	21	7	3	se.	J. E. Peck.
Caliente **	Kern	1,200	37	81.3	− 3.5	109	5†	65	22†	....	1.00	+ 1.00	1.00	0	1	22	3	6	w.	Southern Pacific Co.
Calistoga **	Napa	363	41	73.1	+ 0.5	114	11	50	24†	....	T.	− 0.03	T.	0	0	26	0	5	w.	Do.
Campbell	Santa Clara	217	16	66.6	+ 1.7	103	11	41	15	50	0.09	+ 0.09	0.08	0	2	25	4	2	nw.	F. M. Righter.
Camptonville (near)	Yuba	3,500	6	72.2	.....	102	11	50	14	40	0.33	.....	0.25	0	3	20	4	7	s.	Cal. Gas & Electric.
Cedarville	Modoc	4,675	19	68.0	− 1.6	94	5	40	1†	38	1.44	+ 1.18	0.70	0	5	5	20	6	sw.	T. H. Johnstone.
Chico	Butte	189	43	79.2	− 4.7	109	12	52	15†	48	0.09	+ 0.06	0.09	0	1	23	2	6	s.	G. H. Stephenson.
China Flat	Humboldt	600	4	74.6	.....	104	18†	46	2†	48	0.61	.....	0.24	0	4	19	7	5	w.	O. I. Westerburg.
Chino	San Bernardino	714	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Pacific Co.
Cisco **	Placer	5,939	42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Claremont	Los Angeles	1,200	21	73.1	+ 0.2	103	7	49	30	40	0.04	+ 0.02	0.04	0	1	22	7	2	.....	Prof. F. P. Brackett.
Cloverdale	Sonoma	340	11	72.6	+ 0.8	110	11	46	8	53	0.39	+ 0.39	0.39	0	1	27	1	3	w.	John O. Ogle.
Coalinga	Fresno	663	1	81.1	.....	110	7	58	1†	42	1.22	.....	1.12	0	2	26	0	5	w.	Union Oil Co.
Colfax	Placer	2,421	42	73.1	− 2.2	102	12	45	2	38	0.00	− 0.02	0.00	0	0	27	0	4	.....	Southern Pacific Co.
Colusa	Colusa	60	10	77.0	− 0.1	104	11	53	15	38	T.	− 0.02	T.	0	0	25	2	4	.....	C. D. McComish.
Corning **	Tehama	277	27	88.0	+ 4.6	104	11	67	25	....	T.	0.00	T.	0	0	18	13	0	s.	Southern Pacific Co.
Cuyamaca	San Diego	4,677	14	66.6	− 0.6	92	11	42	28†	41	0.52	+ 0.25	0.45	0	3	26	2	3	e.	Cuyamaca Water Co.
Davisville	Yolo	51	41	75.1	− 2.8	108	11	44	15	54	0.00	− 0.02	0.00	0	0	23	7	1	sw.	S. H. Beckett.
Deer Creek	Nevada	3,700	6	63.8	.....	107	11	27	14	68	0.93	.....	0.35	0	4	19	9	3	n.	Cal. Gas & Electric.
Del Monte	Monterey	25	2	60.0	.....	84	10	50	7†	30	0.00	.....	0.00	0	0	25	4	2	n.	H. R. Warner.
Delta	Shasta	1,138	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Pacific Co.
Denair	Stanislaus	126	13	76.2	− 1.0	103	5†	51	15	41	0.00	0.00	0.00	0	0	30	0	1	.....	Santa Fe Co.
De Sabla	Butte	2,500	9	70.6	.....	98	11	44	16	43	0.20	.....	0.20	0	1	15	15	1	sw.	Cal. Gas & Electric.
Dobbins (near)	Yuba	1,650	9	77.8	.....	112	11	56	15†	40	0.18	.....	0.18	0	1	17	10	4	s.	Do.
Downieville	Sierra	3,150	2	67.8	.....	100	11	38	15	53	1.41	.....	0.61	0	6	17	2	12	s.	J. T. Mason.
Dudley	Kings	595	1	86.6	.....	110	5†	58°	28	45	0.28	.....	0.20	0	2	25	3	3	sw.	Union Oil Co.
Dudleys	Mariposa	3,000	4	66.8	.....	96	11	37	15	50	0.09	.....	0.06	0	2	17	11	3	nw.	W. H. Dudley.
Dunlap (near)	Fresno	2,800	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Dunnigan **	Yolo	65	36	89.0	+ 7.2	108	11	65	26	....	0.12	+ 0.12	0.12	0	1	27	1	3	s.	Southern Pacific Co.
Dunsmuir **	Siskiyou	2,285	24	71.4	+ 0.2	99	30†	55	2†	....	0.96	+ 0.80	0.54	0	4	22	0	9	n.	Do.
Durham	Butte	160	18	79.7	+ 1.2	106	12	51	15	44	0.08	+ 0.08	0.08	0	1	22	6	3	s.	R. W. Durham.
El Cajon	San Diego	482	14	71.6	− 1.0	96	5	52	1†	40	0.20	+ 0.10	0.20	0	1	31	0	0	sw.	H. H. Kessler.
Electra	Amador	725	9	78.6	.....	109	11	57	15	40	0.00	.....	0.00	0	0	24	2	5	.....	Cal. Gas & Electric.
Emigrant Gap	Placer	5,230	39	65.2	− 2.3	91	12	31	28	49	T.	− 0.03	T.	0	0	25	0	6	.....	Southern Pacific Co.
Escondido	San Diego	657	19	72.6	+ 0.3	101	10	48	25	43	0.07	+ 0.06	0.07	0	1	9	22	0	w.	A. R. Moon.
Eureka	Humboldt	64	27	57.2	+ 1.9	69	9	49	19	17	0.28	+ 0.19	0.14	0	9	6	17	8	n.	U. S. Weather Bureau.
Farmington **	San Joaquin	111	34	80.9	+ 2.7	108	11	60	24	....	0.15	+ 0.15	0.15	0	1	22	8	1	nw.	Southern Pacific Co.
Folsom	Sacramento	252	41	81.1	+ 1.2	109	11	60	28†	41	T.	− 0.01	T.	0	0	20	0	11	s.	F. O. Hutton.
Fordyce Dam	Nevada	6 500	18	64.2	.....	91	11	29	2 2	42	3.69	+ 3.51	0.90	0	9	17	7	7	sw.	E. E. Roening.
Fort Bidwell	Modoc	4,375	24	64.6	− 7.3	92	18	38	13†	46	1.52	+ 1.20	0.75	0	5	17	4	10	.....	C. R. Decious.
Foats Springs	Colusa	1,650	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. J. Burgi.
Fresno	Fresno	293	26	80.9	− 1.1	109	12	58	15	38	0.33	+ 0.33	0.33	0	1	24	5	2	nw.	U. S. Weather Bureau.
Galt **	Sacramento	49	35	73.2	− 5.8	105	12	57	28†	....	T.	0.00	T.	0	0	24	5	2	nw.	Southern Pacific Co.
Georgetown	El Dorado	2,650	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. L. Buehler.
Gilroy **	Santa Clara	193	39	74.3	+ 5.5	110	5†	50	16†	....	0.66	+ 0.66	0.60	0	2	17	6	8	n.	Southern Pacific Co.
Gilta	Siskiyou	3,300	3	79.4	.....	97	18	55	3	33	1.44	.....	0.42	0	4	8	14	9	.....	A. Dannenbrink.
Glennville	Kern	3,300	3	72.2	.....	98	11†	50	25	38	1.09	.....	0.74	0	3	20	8	3	.....	C. H. Likely.
Gold Run	Placer	3,222	14	72.8	− 3.2	103	12	49	25	35	T.	0.00	T.	0	0	23	5	3	.....	Southern Pacific Co.
Gonzales **	Monterey	127	14	71.3	+10.7	102	11	50	3†	....	0.00	0.00	0.00	0	0	31	0	0	s.	Do.
Grass Valley	Nevada	2,690	41	72.1	.....	102	11	50	25	32	0.39	+ 0.36	0.32	0	2	19	6	6	sw.	Mrs. L. M. Wentworth.
Greenland Ranch	Inyo	− 178	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. W. Corkhill.
Greenville	Plumas	3,600	19	63.1	− 2.8	94	10	34	15	56	4.33	+ 4.14	1.36	0	6	16	4	11	sw.	C. H. Higbie.
Groveland	Tuolumne	2,828	4	62.1	.....	85	30	37	9	40	0.12	.....	0.12	0	1	.....	.....	.....	.....	H. S. Richardson.
Guinda **	Yolo	350	15	81.3	− 1.4	108	11	54	3	....	T.	− 0.02	T.	0	0	25	4	2	n.	Southern Pacific Co.
Hanford	Kings	249	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.
Healdsburg	Sonoma	110	20	71.8	− 3.3	115	11	45	14	53	0.02	− 0.01	0.02	0	1	17	0	14	se.	Dr. F. J. Kinley.
Hearst (near)	Mendocino	1,800	3	70.5	.....	96	11	47	14	37	0.30	.....	0.19	0	5	22	7	2	w.	H. D. Ellmaker.
Heber	Imperial	− 20	3	88.4	.....	119	10	62	24†	49	T.	.....	T.	0	0	22	9	0	se.	F. E. Hamilton.
Hetch Hetchy	Tuolumne	3,665	3	69.0	.....	100	11	43	15†	49	1.80	.....	0.78	0	7	16	9	6	n.	E. J. Koppitz.
Hollister	San Benito	284	39	66.4	− 0.8	105	11	44	14	46	1.08	+ 1.07	0.78	0	3	21	6	4	w.	J. N. Thompson.
Hornbrook	Siskiyou	2,154	25	67.0	− 6.4	94	12	38	5	....	2.84	+ 2.66	1.12	0	3	10	15	6	n.	Southern Pacific Co.
Hot Springs	Tulare	3,300	6	72.9	.....	100	11	49	25	37	0.53	.....	0.44	0	4	25	0	6	.....	U. S. Forest Service.
Huilville	Lake	2,250	6	70.2	.....	103	11	44	1	42	0.22	.....	0.11	0	3	9	16	6	sw.	T. H. Betterton.

TABLE 1.—*Climatological data for July, 1913. District No. 11*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observer.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
California—Continued.																				
Independence	Inyo	3,907	17	75.4	− 3.1	103	10	51	25	41	1.56	+ 1.45	1.33	0	6	15	10	6	.....	U. S. Weather Bureau
Indian Wells	Kern	2,500																		I. D. McCoy.
Indio	Riverside	−20	35	89.4	− 5.1	117	11	65	30	40	0.26	+ 0.26	0.26	0	1	18	12	1	se.	F. N. Johnson.
Inskip	Butte	4,975	6	64.8	.....	84	11	50	3	22	0.77	.....	0.31	0	4	15	6	10	.....	Cal. Gas & Elect.
Ione **	Amador	287	35	82.6	+ 4.0	108	5	62	15	....	0.00	0.00	0.00	0	0	28	0	3	.....	Southern Pacific Co.
Jamestown	Tuolumne	1,471	10	75.1	− 0.2	105	11	47	15	46	0.00	0.00	0.00	0	0	25	0	6	.....	Seirra Railway Co.
Kennett	Shasta	730	1	78.8	.....	106	12†	53	16	48	0.62	.....	0.44	0	2	16	14	1	ne.	C. H. Kremers.
Kentfield	Marin	65	25	70.6	.....	112	11	47	14	53	0.19	+ 0.18	0.10	0	2	26	3	2	.....	Miss M. E. Parsons.
King City	Monterey	333	26	73.7	+ 6.2	113	13	41	16	58	0.00	0.00	0.00	0	0	31	0	0	n.	Southern Pacific Co.
Lake Eleanor	Tuolumne	4,700	3	65.6	.....	95	11	42	15†	45	0.52	.....	0.23	0	4	18	6	7	s.	O. J. Todd.
La Porte	Plumas	5,000	19	61.6	− 0.8	86	10†	40	13†	36	1.57	+ 1.43	0.99	0	6	19	4	8	n.	C. W. Hendel.
Le Grand	Merced	255	13	78.2	− 2.1	110	12	52	2	47	0.25	+ 0.25	0.20	0	2	28	0	3	w.	Santa Fe Co.
Lemon Cove	Tulare	600	18	82.9	+ 1.3	112	6	56	3	46	0.22	+ 0.21	0.22	0	1	18	7	6	n.	W. R. Park.
Lick Observatory	Santa Clara	4,209	24	67.0	− 2.1	87	11†	47	26	24	0.06	+ 0.06	0.05	0	2	25	2	4	nw.	The Director.
Livermore	Alameda	485	42	71.8°	+ 1.7	110	11	48	14†	53	0.27	+ 0.26	0.20	0	3	27	3	1	w.	E. G. Still.
Lone Pine	Inyo	2,728	8	74.2	.....	105	11†	47	30	46	0.52	.....	0.19	0	3	18	10	3	s.	G. F. Marsh.
Long Valley	Lassen	4,400	4																	A. G. Evans.
Los Angeles	Los Angeles	293	36	70.5	+ 3.1	89	10	58	30	26	T.	− 0.02	T.	0	0	13	15	3	sw.	U. S. Weather Bureau.
Los Banos **	Merced	121	26	78.0	− 2.0	105	11	57	25	....	0.17	+ 0.16	0.17	0	1	22	0	9	w.	Southern Pacific Co.
Los Gatos	Santa Clara	600	26	69.3	+ 1.5	107	11	46	2†	48	0.17	+ 0.17	0.13	0	2	25	4	2	n.	F. H. McCullagh.
McCloud	Siskiyou	3,410	3	64.2	.....	93	31	34	14	47	0.97	.....	0.36	0	5	23	6	2	nw.	F. F. Spencer.
Macdoel	....do	4,528	8	62.0	.....	88	18†	33	15	47	3.15	.....	2.15	0	3	24	2	5	e.	Butte Valley Land Co.
Madeline	Lassen	5,270	4	59.0	.....	88	5†	31	8†	50	4.48	.....	1.70	0	9	21	7	3	nw.	J. H. Williams.
Magalia	Butte	2,321	9	72.2	.....	103	11	45	14†	45	0.17	.....	0.17	0	1	21	8	2	se.	Butte Co. R. R. Co.
Mammoth Tank	Imperial	257	35	92.4	− 6.1	118	10†	65	28	37	0.00	− 0.06	0.00	0	0	27	3	1	.....	Southern Pacific Co.
Maricopa	Kern	640	2	82.4	.....	111	12	61	27†	38	0.18	.....	0.16	0	2	20	4	7	e.	Union Oil Co.
Marysville	Yuba	67	42	78.1	− 1.9	107	12	52	15	47	T.	0.00	T.	0	0	24	0	7	s.	Southern Pacific Co.
Mecca	Riverside	−185	7	88.8	.....	114	9†	65	25	36	T.	.....	T.	0	0	21	9	1	se.	E. A. Palmer.
Menlo Park **	San Mateo	64	35	72.9	+ 5.2	98	11	62	6	....	T.	− 0.01	T.	0	0	26	0	5	.....	Southern Pacific Co.
Merced	Merced	173	39	78.2	− 3.5	107	12†	55	16	49	0.24	+ 0.23	0.20	0	2	24	2	5	nw.	Santa Fe Co.
Middlewater	Kern	803	2	83.6	.....	109	12	53	14	43	0.28	.....	0.20	0	2	24	0	7	w.	Union Oil Co.
Mill Creek No. 1	Amador	2,500	6	68.0	.....	94	11	43	15	44	0.24	.....	0.21	0	2	19	6	6	n.	Cal. Gas. & Elect.
Milton (near)	Calaveras	660	22	78.6	+ 0.7	110	11	53	16	42	0.04	+ 0.04	0.04	0	1	26	4	1	nw.	J. H. Southwick.
Modesto **	Stanislaus	90	41	76.2	− 5.3	105	9†	60	2†	....	0.00	− 0.01	0.00	0	0	....	....	....	....	Southern Pacific Co.
Mojave	Kern	2,751	36	80.9	− 4.8	112	11	62	25†	....	1.75	+ 1.69	1.75	0	1	25	5	1	w.	Do.
Mokelumne Hill	Calaveras	1,550	20	76.3	− 0.5	105	11	51	28	37	T.	0.00	T.	0	0	23	4	4	.....	C. E. Prindle.
Mono Ranch	Ventura	3,210	7	67.8	.....	97	9†	40	30	44	T.	0.00	T.	0	0	24	4	3	w.	Herbert Lathrop.
Montague	Siskiyou	2,450	25	67.0	−10.2	102	20	41	16†	60	3.57	+ 3.34	2.07	0	3	7	12	12	n.	I. E. De Boy.
Monterey **	Monterey	15	48	67.7	+ 6.7	90	11	56	3†	....	0.00	0.00	0.00	0	0	26	5	0	e.	Southern Pacific Co.
Monterio	Kern	4,500	14																	John C. Knecht.
Mount Tamalpais	Marin	2,375	14	67.2	− 3.3	96	11	49	28	23	0.09	+ 0.08	0.09	0	2	24	5	2	nw.	U. S. Weather Bureau.
Napa City	Napa	20	36	66.2	+ 0.2	98	4	39	11	48	0.00	− 0.01	0.00	0	0	28	0	3	sw.	Alex. Hull.
Napa (S. H.)	....do	60	35	71.0	+ 3.4	106	11	52	14	42	0.01	0.00	0.01	0	1	20	6	5	sw.	A. R. Edgar.
Needles	San Bernardino	477	21	91.8	− 2.8	114	11	73	28	31	0.56	+ 0.29	0.40	0	2	23	3	5	s.	Santa Fe Co.
Nellie	San Diego	5,350	4	67.0°	.....	90	11	39	24	36	0.45	.....	0.25	0	2	....	....	....	....	T. O. Bailey.
Nevada City	Nevada	2,850	21	68.4	− 0.4	102	11	40	15	49	0.24	+ 0.22	0.24	0	1	19	10	2	w.	S. W. Marsh.
Newhall **	Los Angeles	1,200	36	90.6	+14.0	111	6	68	28	....	0.01	+ 0.01	0.01	0	1	26	3	2	s.	Southern Pacific Co.
Newman	Stanislaus	91	24	78.9	− 3.1	112	5†	41	14	58	0.18	+ 0.18	0.18	0	1	29	0	2	.....	E. S. Wangenheim.
North Bloomfield	Nevada	3,214	16	74.8	+ 3.3	104	11	54	15	31	0.40	+ 0.33	0.40	0	1	19	3	9	s.	J. R. McIntosh.
North Fork	Madera	3,000	9	72.6	.....	103	13	49	16	49	0.69	.....	0.50	0	3	21	8	2	nw.	U. S. Forest Service.
Oakdale **	Stanislaus	156	19	79.5	+ 1.2	108	6†	63	31	....	0.02	+ 0.02	0.02	0	1	25	0	6	nw.	Southern Pacific Co.
Oak Grove	San Diego	2,751	3																	B. L. Johnson.
Oakland	Alameda	36	37	65.4	+ 3.6	95	11	52	14†	31	0.12	+ 0.10	0.08	0	3	16	9	6	w.	Chabot Observatory.
Oceanside	San Diego	60	3	69.8	.....	78	5†	56	30	20	0.05	.....	0.05	0	1	19	9	3	w.	H. D. Brodie.
Ojai Valley	Ventura	900	7	71.5	.....	102	10	45	30	47	T.	.....	T.	0	0	23	6	2	sw.	W. H. Duncan.
Orland	Glenn	254	31	81.4	− 5.0	109	12	56	14	48	0.04	+ 0.03	0.04	0	1	21	8	2	se.	U. S. Reclamation Service.
Orleans	Humboldt	520	10	76.8	− 2.8	107	18	52	15†	45	0.92	+ 0.74	0.52	0	3	23	0	8	.....	F. T. Hale.
Oroville (near)	Butte	250	29	79.4	− 0.8	107	6†	51	18	49	0.05	+ 0.03	0.03	0	2	22	2	7	s.	E. D. Fairchild.
Palermo	....do	213	22	75.4	− 2.8	110	28	32	6	50	0.08	+ 0.05	0.04	0	2	23	6	2	n.	Western Pacific Co.
Palm Springs **	Riverside	584	24	88.5	− 6.0	114	8†	66	26	....	T.	− 0.02	T.	0	0	....	....	....	....	Southern Pacific Co.
Pasadena	Los Angeles	827	23	69.6	− 1.8	97	7	46	30	38	0.01	+ 0.01	0.01	0	1	24	5	2	sw.	E. D. Sorver.
Paso Robles	San Luis Obispo	800	26	70.8	− 1.2	110	12	38	16	57	0.00	0.00	0.00	0	0	21	8	2	nw.	Dr. F. W. Sawyer.
Peachland	Sonoma	190	17	66.8	+ 1.2	111	11	41	15	53	0.01	− 0.01	0.01	0	1	20	10	1	sw.	E. H. Parnell.
Petaluma	....do			66.2	.....	108	11	42	14	51	0.11	.....	0.07	0	2	17	13	1	nw.	John Landis.
Placerville	El Dorado	1,875	24	71.6	− 1.0	100	11	46	15	44	0.15	+ 0.13	0.15	0	1	23	0	8	.....	A. E. May.
Point Lobos	San Francisco	250	20																	John Hyslop.
Point Reyes	Marin	490	21	55.2	+ 1.7	68	31	48	18	15	0.16	+ 0.09	0.13	0	4	10	7	14	nw.	U. S. Weather Bureau.
Pomona	Los Angeles			72.6	.....	101	7	46	30	46	0.01	.....	0.01	0	1	10	3	18	w.	J. E. Adamson.
Porterville	Tulare	464	24	83.4	− 1.4	114	12	58	2†	45	0.30	+ 0.27	0.30	0	1	21	6	4	.....	Leslie McAuliff.
Quincy	Plumas	3,400	18	65.0	− 0.3	96	10	33	15	56	0.57	+ 0.49	0.30	0	3	21	6	4	s.	U. S. Forest Service.
Red Bluff	Tehama	307	36	80.8	− 1.3	105	12	61	25	35	T.	− 0.03	T.	0	0	20	7	4	se.	U. S. Weather Bureau.
Redding	Shasta	552	38	80.6	− 1.7	104	12	59	14	43	0.10	+ 0.01	0.08	0	2	20	10	1	nw.	W. W. Jones.
Redlands	San Bernardino	1,352	20	73.8	− 3.6	102	10	51	25†	42	0.12	+ 0.10	0.12	0	1	24	3	4	w.	W. S. Devol.
Reedley	Fresno	347	13	80.4	− 1.6	108	12	59	27	40	0.28	+ 0.28	0.28	0	1	28	0	3	nw.	Santa Fe Co.
Rialto (near)	San Bernardino	2,250	7	73.1	.....	100	5†	51	25†	34	0.79	.....	0.51	0	2	20	9	2	n.	So. Cal. Edison Co.
Riverside	Riverside	851	31	75.4	− 0.9	106	7	49	30	46	0.07	+ 0.05	0.07	0	1	16	13	2	w.	J. H. D. Cox.
Rocklin	Placer	249	42	77.8	− 2.2	109	12	47	15	44	0.02	0.00	0.02	0	1	25	3	3	se.	Southern Pacific Co.
Rohnerville	Humboldt	75	10	61.0	.....	77	9	45	9†	32	0.29	+ 0.18	0.20	0	3	24	0	7	nw.	Dr. R. Callahan.
Sacramento	Sacramento	71	36	74.4	+ 1.9	104	11	54	15	37	0.00	0.00	0.00	0	0	27	3	1	s.	U. S. Weather Bureau.
St. Helena	Napa	255	5	75.0	.....	115	11	46	8	54	0.00	.....	0.00	0	0	27	3	1	.....	E. E. Hooper.
Salinas	Monterey	40	39	66.0[1]	+ 3.3	95	11	52	4†	40	0.17	0.17	0.15	0	2	....	....	....	....	Miss E. Ruth Abbott.
San Bernardino	San Bernardino	1,054	21	74.8	− 0.8	105	10	48	30	46	0.19	+ 0.15	0.19	0	1	16	13	2	sw.	Dr. A. K. Johnson.
San Diego	San Diego	93	42	68.2	+ 1.3	78	7	60	25	15	0.06	+ 0.05	0.05	0	2	20	11	0	w.	U. S. Weather Bureau.
San Francisco	San Francisco	207	42	60.6	+ 3.3	90	11	50	14	28	0.07	+ 0.05	0.06	0	2	16	9	6	w.	Do.
San Jacinto	Riverside	1,550	20	76.4	+ 0.1	105	5†	49	25	45	0.20	+ 0.11	0.20	0	1	26	2	3	w.	E. T. Tanner.
San Jose	Santa Clara	95	38	68.1	+ 1.2	103	11	46	2	45	0.09	+ 0.09	0.08	0	2	24	6	1	nw.	U. S. Weather Bureau.
San Luis Obispo	San Luis Obispo	201	18	66.1	+ 2.9	96	9	49	15	44	T.	0.00	T.	0	0	18	10	3	nw.	Do.
San Mateo **	San Mateo	22	39	73.5	+ 8.1	98	11	62	22	....	0.13	+ 0.13	0.13	0	1	26	3	2	n.	Southern Pacific Co.
San Miguel **	San Luis Obispo	616	26	79.0	+ 3.3	107	10	58	16	....	0.23	+ 0.23	0.23	0	1	17	8	6	.....	Do.
San Miguel Island	Santa Barbara	500	19	61.4	.....	75	11	52	16†	20	0.20	+ 0.17	0.10	0	2	24	6	1	w.	Capt. W. G. Waters.
Sanger **	Fresno	371	24	85.3	− 0.8	110	12	64	31	....	0.42	+ 0.42	0.42	0	1	19	7	5	.....	Southern Pacific Co.
Santa Barbara	Santa Barbara	130	29	66.3	+ 1.1	85	7	47	25	26	0.09	+ 0.07	0.06	0	2	19	10	2	w.	G. W. Russell.
Santa Clara	Santa Clara	90	24	68.6	+ 4.3	107	11	44	2†	51	0.16	+ 0.16	0.10	0	2	28	1	2	nw.	Santa Clara University.
Santa Cruz	Santa Cruz	20	40	63.3	− 0.6	102	11	43	2†	52	0.35	+ 0.34	0.30	0	2	25	6	0	w.	W. R. Springer.
Santa Margarita **	San Luis Obispo	996	24	71.4	− 1.3	104	10	40	29	....	0.00	− 0.01	0.00	0	0	15	11	5	sw.	Southern Pacific Co.
Santa Monica	Los Angeles	110	28	64.0	− 3.9	76	1	52	25†	21	T.	0.00	T.	0	0	26	4	1	w.	F. E. Hill.

TABLE 1.—*Climatological data for July, 1913. District No. 11*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
California—Contd.																				
Santa Rosa	Sonoma	181	24	67.6	+ 1.3	112	11	43	8†	51	0.07	+ 0.02	0.05	0	2	17	5	9	s.	Southern Pacific Co.
Selma **	Fresno	311	27	79.1	− 5.5	107	12	60	3†	....	0.19	+ 0.19	0.19	0	1	29	0	2	.....	Do.
Seven Oaks	San Bernardino	5,000	3	61.2	.....	88	10	36	29	32	1.56	.....	0.75	0	4	12	10	9	w.	M. Lewis.
Sierra Madre	Los Angeles	1,400	16	72.6	+ 0.1	96	7	54	30	32	0.03	+ 0.02	0.03	0	1	18	11	2	s.	Mrs. A. E. Gregory.
Sierraville	Sierra	5,000	3	59.8	.....	93	5	29	15	58	3.91	.....	1.75	0	7	16	3	12	sw.	C. D. Johnson.
Sisson	Siskiyou	3,555	24	64.0	− 5.9	89	31	37	12	45	0.55	+ 0.45	0.55	0	1	24	1	6	n.	Southern Pacific Co.
Soledad **	Monterey	188	39	.....	.....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	....	.....	Do.
Sonora	Tuolumne	1,825	2	75.2	.....	100	11†	54	15†	40	0.08	+ 0.06	0.08	0	1	26	4	1	w.	Chas. P. Jones.
S. E. Farallon	San Francisco	30	10	55.3	+ 1.6	67	25	48	18	10	0.06	+ 0.06	0.05	0	2	9	10	12	nw.	U. S. Weather Bureau.
Springville	Tulare	4,000	6	69.0	.....	98	11	43	9	47	1.25	.....	0.37	0	4	19	6	6	.....	D. L. Wishon.
Squirrel Inn	San Bernardino	5,280	3	64.4	.....	88	10	42	28	26	0.49	.....	0.31	0	2	28	1	2	s.	A. D. Frantz.
Stanwood	Butte	2,140	9	70.0	.....	102	12	42	22†	42	0.22	.....	0.09	0	7	16	7	8	n.	Cal. Gas & Elect.
Stirling City	....do	3,525	9	.....	.....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	....	.....	Butte Co. R. R. Co.
Stockton (S. H.)	San Joaquin	23	42	75.1	+ 2.5	108	11	53	15	38	0.14	+ 0.14	0.14	0	1	24	6	1	nw.	State Hospital.
Storey	Madera	296	13	77.9	− 0.8	107	12	54	15	43	0.30	+ 0.30	0.30	0	1	28	0	3	.....	Santa Fe Co.
Suisun **	Solano	20	33	.....	.....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	....	.....	Southern Pacific Co.
Sulphur Banks	Lake	1,350	1	75.0	.....	106	11	50	2	46	0.04	.....	0.04	0	1	18	12	1	w.	L. S. Lorenzen.
Summit	Placer	7,017	40	57.2	− 3.8	79	10	38	1†	36	2.45	+ 2.29	1.00	0	5	15	2	14	s.	Southern Pacific Co.
Susanville	Lassen	4,175	24	.....	.....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	....	.....	C. M. Penry.
Tamarack	Alpine	8,000	7	52.4	.....	78	17†	30	3	47	4.22	+ 3.59	0.65	0	15	13	14	4	sw.	Cal. Gas & Elect.
Tehachapi **	Kern	3,964	26	75.5	− 0.9	96	6†	64	4†	....	2.00	+ 1.99	2.00	0	1	....	....	....	.....	Southern Pacific Co.
Tehama	Tehama	220	42	86.5	+ 2.4	101	12	64	16	....	0.00	− 0.06	0.00	0	0	26	0	5	s.	Do.
Tejon Rancho	Kern	1,500	10	80.6	− 0.2	101	13	60	25†	28	1.00	+ 1.00	1.00	0	1	....	....	....	.....	S. E. Bailey.
Three Rivers	Tulare	870	3	77.7	.....	106	5†	54[a]	15	44	0.87	.....	0.55	0	4	19	7	5	sw.	J. H. Pierce.
Towle	Placer	3,704	27	75.8	+ 5.1	102	12	55	15	34	0.06	+ 0.04	0.04	0	2	27	3	1	ne.	Southern Pacific Co.
Tracy **	San Joaquin	64	33	84.8	+ 4.9	107	11	64	28	....	0.18	+ 0.18	0.18	0	1	....	....	....	.....	Do.
Ukiah	Mendocino	620	20	73.2	+ 1.9	110	11	44	8	55	0.18	+ 0.16	0.13	0	2	22	5	4	nw.	Dr. Geo. McCowen.
Upper Lake	Lake	1,350	28	72.4	− 1.5	107	11	44	13	52	0.17	+ 0.15	0.17	0	1	26	2	3	nw.	C. M. Hammond.
Vacaville	Solano	175	25	.....	.....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	....	.....	G. O. Coburn.
Valley Springs **	Calaveras	673	24	80.0	0.0	108	11	66	15†	....	0.00	− 0.01	0.00	0	0	24	6	1	nw.	Southern Pacific Co.
Visalia	Tulare	334	25	76.2	− 3.8	109	12	48	30	56	0.00	− 0.02	0.00	0	0	26	0	5	.....	Santa Fe Co.
Warner Springs	San Diego	3,165	5	71.3	.....	98	5	45	28	39	0.44	.....	0.35	0	2	24	7	0	.....	Mrs. F. S. Sandford.
Wasco	Kern	336	13	82.2	− 0.1	109	5	58	14	44	0.00	0.00	0.00	0	0	11	0	20	nw.	Santa Fe Co.
Watsonville	Santa Cruz	23	17	63.4	+ 1.0	105	11	40	14†	58	0.38	+ 0.38	0.30	0	3	9	20	2	w.	Spreckels Sugar Co.
Weaverville	Trinity	2,162	1	69.6	.....	100	22	41	2†	49	0.69	+ 0.56	0.52	0	3	24	1	6	.....	U. S. Forest Service.
Weitchpec	Humboldt	1,700	3	66.4	.....	95	18	43	2†	39	1.51	.....	1.07	0	3	22	5	4	s.	M. E. Lathrop.
Westley **	Stanislaus	90	24	81.7	− 1.0	106	11	60	20†	....	0.15	+ 0.13	0.15	0	1	23	6	2	n.	Southern Pacific Co.
Wheatland	Yuba	84	26	77.8	+ 1.1	107	11	54	15	39	0.08	+ 0.07	0.08	0	1	19	8	4	s.	Wm. Lumbard.
Willows	Glenn	136	34	81.0	− 1.9	108	11†	44	3	49	T.	0.00	T.	0	0	27	2	2	n.	E. C. Mills.
Yorba Linda	Orange	.....	....	73.0	.....	99	7	53	28	39	T.	.....	T.	0	0	26	4	1	w.	S. J. Walker.
Yosemite	Mariposa	3,945	9	67.4	.....	101	11†	33	1	59	1.36	.....	0.57	0	6	23	3	5	s.	J. P. Kelly.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 11, California.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon.																																	
Klamath Falls	Klamath			.13																		T.		.15	.99	.10						1.37
Lake View	Pitt			.32																		T.	T.	.79	1.14	.17			.27			2.69
Merrill	Interior drainage.			.18																		.01	.04	.05	1.62	.12						2.02
Vistillas	Pitt																															
Yonna	Interior drainage.																						.18	.24	.89	.35						1.66
California.																																
Aguanga	Coast																				.16											
Alturas	Sacramento			.02																		.02	.11	2.00	.24		.02		.55	.01		3.00
Angels Camp	San Joaquin																				T.	T.	.11									0.11
Angiola	do																															
Antelope Valley	do																					.07				T.						0.07
Antioch	do																						.06	.12								0.18
Aptos	Coast																						.05			.43						0.48
Arrowhead Springs	do																			.10						.05	T.					0.15
Auburn	Sacramento																						T.	.04								0.04
Avalon	Ocean																				T.											T.
Agusa	Coast																				.01											0.01
Bagdad	Desert																															0.00
Bakersfield	San Joaquin																					.10	.33									0.43
Barstow	Desert																				.20	.15		T.				T.				0.35
Bear River	San Joaquin																															
Bear Valley	do																			.89	.21											1.10
Bear Valley Dam	do						.10	.10													.38											0.58
Beaumont	do																				.74											0.74
Beaumont (near)	do																				1.16											1.16
Belotta	do																.01															0.01
Ben Lomund	Coast																						.10		.27	.03						0.40
Berkeley	do																						.09	.10								0.19
Betteravia	do																															0.00
Biggs	Sacramento																							.20								0.20
Bishop	Owens																															
Bishop Creek	do																															
Blocksburg	Coast			.27																			.14					T.	T.			0.41
Blue Canon	Sacramento																							.40	.12							0.52
Blythe	Desert																	.90		.15	T.	1.15									T.	2.20
Boulder Creek	Coast																						.17									0.17
Bowmans Dam	Sacramento																						1.24	.30		.08		.60	T.	T.		2.22
Branscomb	Coast			.40																				T.								0.40
Brawley	Desert																					.27										0.27
Burney	Sacramento			.37																				.18				.16	.04			0.75
Butte Valley	do																															
Cahuilla	Coast																															0.50
Calexico	Desert																				.05		.06									0.11
Caliente	San Joaquin																					1.00										1.00
Calistoga	Coast																						T.									T.
Campbell	do																						.08	T.		.01						0.09
Campo	do																			.36												0.36
Camptonville (near)	Sacramento			.02																.06			T.	.25			T.					0.33
Cedarville	Mountain Lakes.			.17																	.14	T.	.24	.70			.19	T.				1.44
Chester	Sacramento			.09																	.05		.32	.64			.25	.25				1.60
Chico	do			T.																				.09								0.09
Chico (near)	do																		T.				.02			.02						0.04
China Flat	Coast		.18	.05						T.										T.			.14	.24				T.				0.61
Chino	do																															
Cisco	Sacramento																															
Claremont	Coast																					.04										0.04
Cloverdale	do			T.																			T.	.39		T.						0.39
Coalinga	San Joaquin																							1.12		.10						1.22
Colfax	Sacramento																															0.00
Colgate	do																							.15								0.15
Colusa	do																						T.	T.								T.
Corning	do																						T.	T.								T.
Corona	Coast																															
Cuyamaca	do																				.45						.03	.04				0.52
Davisville	Sacramento																															0.00
Deer Creek	do			.05															T.				.34	.19				.35				0.93
Del Monte	Coast																															0.00
Delta	Sacramento																															
Denair	San Joaquin																															0.00
De Sabla	Sacramento			T.																T.				.20								0.20
Descanso	Coast																															
Devils Canon	do																				.26						.14					0.40
Dinuba	San Joaquin																						.28									0.28
Dobbins (near)	Sacramento																						T.	.18								0.18
Downieville	do			.07																T.	.33		.61		.15		.19	.06				1.41
Dudley	San Joaquin																					.08				.20						0.28
Dudleys	do																					T.	.03	.06		T.				T.		0.09
Dunlap (near)	do																															
Dunnigan	Sacramento																							.12								0.12
Dunsmuir	do			.05																			T.	.10	.27				.54			0.96
Durham	do			T.															T.				T.	.08	T.							0.08
East Park	do																									.02						0.02
Edgewood	Sacramento																							1.13	.72	.18	.03		.10	.04		2.20
Edison	San Joaquin																															
El Cajon	Coast																				.20											0.20
Electra	San Joaquin																															0.00
Emigrant Gap	Sacramento																							T.				T.				T.
Escondido	Coast																				.07											0.07
Eureka	do		.01	.13						.01										.01			.03	.04	.02	.02	.01					0.28
Fairmont	do																															
Farmington	San Joaquin																							.15								0.15
Felton	Coast																									.37						0.37
Firebaugh	San Joaquin																															
Folsom	Sacramento																						T.	T.								T.
Fordyce Dam	do			.25																.70		T.	.30	.90	.05	.35	T.	.70	.04	.40		3.69
Fort Bidwell	Mtn. Lakes			.13																			.75	.15	.39		.10					1.52
Fort Bragg	Coast			.15																												0.15

TABLE 2.—*Daily precipitation for July, 1913. District No. 11*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Contd.																															
Fort Ross	Coast																														.....
Fouts Springs	Sacramento																														.....
Fresno	San Joaquin																					T.	.33								0.33
Friant	....do																						T.	T.							.....
Galt	....do																														T.
Georgetown	....do																														.....
Gilroy	Coast																						.06		.60						0.66
Gilta	....do			.40																		.40	.22		T.	.42					1.44
Glenn Ranch	....do																				.30							.03			0.33
Glennville	San Joaquin																				.05	T.	.74	.30							1.09
Glenwood	Coast																						T.			.29					0.29
Gold Run	Sacramento																						T.	T.	T.						T.
Gonzales	Coast																														0.00
Grass Valley	Sacramento			T.															T.				.07	.32							0.39
Greenland Ranch	Desert																														.....
Greenville	Sacramento			T.																T.	.98	.24	.68	.65	T.	T.	.42	1.36	T.		T.	4.33
Gridley	....do																							.15							0.15
Groveland	San Joaquin																										.12				0.12
Guinda	Sacramento																					T.	T.								T.
Hanford	San Joaquin																														.....
Head Dam	Sacramento																							.22							0.22
Healdsburg	Coast																						.02	T.							0.02
Hearst (near)	....do																			.02			.01	.07			.01	.19			0.30
Heber	Desert																			T.		T.									T.
Helen Mine	Coast																														0.30
Hetch Hetchy	San Joaquin																						.36	.09	.07	.47	.01		.78	.02	1.80
Holcomb	Coast							T.										T.	T.	T.	.59										0.59
Hollister	....do																						.07			.78	.23				1.08
Hornbrook	Klamath																							.80	1.12	.92					2.84
Hot Springs	San Joaquin																					.44	.05	.01		.03	T.				0.53
Hullville (near)	Coast			.07																T.				.04				.11			0.22
Hyampon	....do			.71																				.37				.19		.07	1.34
Independence	Owens						.06											.06		T.	.03	.03	1.33				.05				1.56
Indian Wells	Desert																														.....
Indio	....do																				.26										0.26
Inskip	Sacramento			.20																T.	T.		T.	.31			.06	.20			0.77
Ione	San Joaquin																														0.00
Jacksonville	....do																							.15							0.15
Jamestown	....do																														0.00
Jenny Lind	....do																														0.00
Jolon	Coast																					.02				T.					0.02
Julian	....do																			.52							.06				0.58
Kennedy Mine	San Joaquin																														0.00
Kennett	Sacramento			.18																T.			T.	.44							0.62
Kentfield	Coast																					T.	.09	.10							0.19
Kernville	San Joaquin																				.70	.11		.12							0.93
King City	Coast																														0.00
Knights Landing	Sacramento																							.12			T.				0.12
La Grange	....do																														.....
La Jolla	Coast																														.....
Lake Eleanor	San Joaquin																					T	.23	.10	T.	.16	.03		T.	T.	0.52
Lakeside	Coast																														.....
Lake Spaulding	Sacramento			.10															T.	T.		.10	.58	.35	T.	T.		.40			1.53
La Porte	....do			.16																.01			.99	.22			.15	.04			1.57
Lathrop	San Joaquin																						T.	.15							0.15
Laurel	Coast																						.08			.30					0.38
Le Grand	San Joaquin																						.20					.05			0.25
Lemon Cove	....do																					.22								T.	0.22
Lick Observatory	Coast																						.05			.01					0.06
Livermore	Coast																						.20	.02		.05					0.27
Lone Pine	Owens																	T.		T.	.19	T.	.15			T.	.18				0.52
Long Valley	M't'n Lakes																														.....
Lordsburg	Coast																														0.00
Los Alamos	....do																					T.									T.
Los Angeles	....do																				T.										T.
Los Banos	San Joaquin																						.17								0.17
Los Gatos	Coast																					T.	.04			.13					0.17
Los Molinos	Sacramento																														.....
Lowe Observatory	Coast																				T.						.05				0.05
McCloud	Sacramento			.05																				.21	.36			T.	.09	.26		0.97
Macdoel	Klamath																							.90	2.15						.10	3.15
Madeline	M't'n Lakes			.13																		.10	1.70	1.03	.25	.07	.40	.27	.53			4.48
Magalia	Sacramento																		T.				.17			T.						0.17
Mammoth Tank	Desert																														0.00
Maricopa	San Joaquin																				.16	.02		T.							0.18
Mariposa	....do																						.40	.04							0.44
Marysville	Sacramento																						T.								T.
Mecca	Desert																				T.	T.									T.
Melones	San Joaquin																							.08							0.08
Menlo Park	Coast																					T.	T.	T.							T.
Merced	San Joaquin																						.20	.04							0.24
Merced Falls	....do																														.....
Mesa Grande	Coast																				.18						.05				0.23
Middlewater	San Joaquin																					20			.08						0.28
Mill Creek (1)	....do																								.21	.03					0.24
Mill Creek (2)	Coast																				.66					.01	.03				0.70
Mills College	....do																						.13	.06							0.19
Milo	San Joaquin																					.06	.20								0.26
Milton (near)	....do																						T.	.04							0.04
Modesto	....do																														0.00
Mojave	Desert																														‡1.75
Mokelumne Hill	San Joaquin																						T.	T.							T.
Mono Ranch	Coast																					T.									T.
Montague	Klamath			T.																		T.	.20	1.30	2.07						3.57
Monterey	Coast																														0.00
Monterio	San Joaquin																														.....
Montgomery Creek	Sacramento			.29																				.15	.20						0.64
Mount Tamalpais	Coast																						.03	.06							0.09
Mount St. Helena	....do																														.....
Napa City	....do																														0.00
Napa (S. H.)	....do																						.01	T.							0.01

TABLE 2.—*Daily precipitation for July, 1913. District No. 11*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Contd.																																	
Needles	Desert																	.16			.40												0.56
Nellie	Coast							T.								T.					.20										.25		0.45
Nevada City	Sacramento			T.															T.	T.			T.	.24									0.24
Nevis	do																		T.		.25	T.	.11	.66	.03	.20	.13	.02					1.40
Newhall	Coast																				.01												0.01
Newman	San Joaquin																					T.	.18	T.									0.18
North Bloomfield	Sacramento																			T.			T.	.40									0.40
North Fork	San Joaquin																						.50	.04			.15			T.			0.69
North Lakeport	Coast																							.03									0.03
Oakdale	San Joaquin																				T.		.02										0.02
Oak Grove	Coast																																
Oakland	do																					.01	.08	.03	T.		T.	T.					0.12
Oakville	do																																0.00
Oceanside	do																			.05	T.						T.	T.					0.05
Ojai Valley	do																					T.											T.
Orland	Sacramento																					T.	.04	T.	T.								0.04
Orleans	Klamath		.52																				T.	.36	.04								0.92
Oroville (near)	Sacramento																							.02	.03								0.05
Ozena	Coast																																0.00
Palermo	Sacramento																								.04	.04							0.08
Palm Springs	Desert																				T.												T.
Parkfield	Coast																									.08							0.08
Pasadena	do																				.01												0.01
Paso Robles	do																																0.00
Peachland	do																						T.	T.	T.					T.	T.	.01	0.01
Petaluma	do																						.07	.04	T.								0.11
Phoenix Dam	San Joaquin								.40																								0.40
Pilot Cresk	Sacramento			.27														T.	T.	T.		T.	.16	.12					T.	T.			0.55
Pinchot	Coast																																
Pine Crest	do													.05								.15											0.20
Placerville	Sacramento																							.15									0.15
Point Lobos	Coast																																
Point Loma	Coast	.01									T.										.04	T.											0.05
Point Reyes	do			.01																			.09	.05					T.	.01			0.16
Pomona	do																				.01												0.01
Portersville	San Joaquin																					.30											0.30
Priest Valley	Coast																																
Quincy	Sacramento																																
Red Bluff	do			T.																T.			.10	.30		.17							0.57
Redding	do			.02																				T.									T.
Redlands	Coast																				.12			T.	.08								0.10
Reedley	San Joaquin																					.28											0.12
Repressa	Sacramento																																0.28
Rialto (near)	Coast																				.28						.51						0.00
Rio Vista	Sacramento																								.05								0.79
Riverside	Coast																				.07												0.05
Rocklin	Sacramento																							.02									0.07
Rohnerville	Coast			.20																	T.		T.	.05	.04								0.02
Ruth	do			.18																	T.		T.	.04				T.	.02			0.29
Sacramento	Sacramento																																0.24
Saint Helena	Coast																																0.00
Salinas	do																																0.00
San Bernardino	do																						.15		T.	.02							0.17
San Diego	do																				.19												0.19
San Francisco	do																				.05						.01						0.06
San Jacinto	do																						.06	.01	T.		T.		T.	T.			0.07
San Jose	do																				.20												0.20
San Luis Obispo	do																						.08	T.		.01							0.09
San Mateo	do													T.												T.	T.						T.
San Miguel	do																				T.	.13											0.13
San Miguel Island	Ocean																								.23								0.23
Sanger	San Joaquin																					.10				10							0.20
Santa Ana River	Coast																					.42											0.42
Santa Barbara	do																				.40						.03						0.43
Santa Clara	do													.03								.06											0.09
Santa Cruz	do																					T.	.06	T.		10							0.16
Santa Margarita	do																					T.	.05		.30								0.35
Santa Monica	do																																0.00
Santa Rosa	do																											T.					T.
Sausalito	do																				T.		T.	.05	.10					.05			0.07
Selma	San Joaquin																					.19											0.15
Seven Oaks	Coast							.17	T.							.75			.57	.07													0.19
Shively	do			.10																				.03									1.56
Sierra Madre	do																				.03												0.13
Sierraville	Mtn. Lakes																		T.	T.	T.	T.	1.75	.65		.51		.03	.15	.35	.20		0.03
Sisquoc Ranch	Coast																																3.91
Sisson	Sacramento																						.55										
Soledad	Coast																																0.55
Sonora	San Joaquin																					T.		.08								T.	0.08
Southeast Farallon	Ocean																						.05	.01									0.06
Spreckels	Coast																																0.00
Springville	San Joaquin																					.30	.30				.28		.37				1.25
Squirrel Inn	Coast																				.31						.18						0.49
Stanwood	Sacramento		T.	.09																	.01	.01	T.	.05	.02	.03	.01						0.22
Stirling City	do																																
Stockton (S. H.)	San Joaquin																					T.	T.	.14									0.14
Storey	do																						.30										0.30
Suisun	Sacramento																																
Sulphur Banks	do			T.																				.04									0.04
Summit	do																		T.					1.00		.75	.30	.20	T.	.20			2.45
Susanville	Mtn. Lakes																																
Tamarack	Sacramento			.03														.30	.24	.25	.20	.30	.25	.30	.65	.15	.45	.25	.15	.23	.47		4.22
Tehachapi	San Joaquin																					2.00											2.00
Tehama	Sacramento																																0.00
Tejon Rancho	San Joaquin																					1.00											1.00
Three Rivers	do																				T.	T.	.55	.08		.11	.13		T.				0.87
Towle	Sacramento																							.04	.02								0.06
Tracy	San Joaquin																						.18										0.18
Tulare	do																																
Tustin (near)	Coast																																0.00
Ukiah	do			.05																				.13									0.18
Upper Lake	Sacramento																						T.	.17									0.17

TABLE 2.—*Daily precipitation for July, 1913. District No. 11, California*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Contd.																																	
Upper Mattole	Coast																																.....
Vacaville	Sacramento																																.....
Valley Springs	San Joaquin																																0.00
Visalia	do																																0.00
Warner Springs	Coast							T.								T.				.35	.09												0.44
Wasco	San Joaquin																																0.00
Watsonville	Coast																					.06			.30	.02							0.38
Weaverville	do		T.	.04																			T.	.52	.13				T.				0.69
Weitchpec	Klamath			1.07																T.			T.	.05	.39								1.51
West Branch	Sacramento			.10															.05				.14			.05	.16							0.50
Westley	San Joaquin																						.15											0.15
West Point	do																						T.		.26									0.26
West Saticoy	Coast																																.....
Wheatland	Sacramento																						T.	.08			T.							0.08
Willows	do																							T.	T.									T.
Yorba Linda	Coast																T.				T.													T.
Yosemite	San Joaquin																					.20	.02	.36		.57	.09		.12					1.36

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 11, California.*

Date.	Lake View, Oreg.		California.																					
			Alturas.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	70	45	77	42	101	68	72	40	107	67	88	59	61	54	97	63	96	59	87	61	75	58	86	46	102	61	91	65
2	68	37	77	40	102	71	70	39	103	67	88	60	61	53	94	61	96	64	82	60	70	53	84	44	97	58	88	62
3	59	47	72	51	106	78	64	39	103	72	89	61	64	55	92	63	92	67	77	60	64	52	77	49	96	59	86	66
4	.....	41	84	43	100	72	70	40	103	67	93	59	62	55	94	60	92	59	79	61	78	56	88	45	99	61	97	64
5	83	45	94	42	105	73	88	45	103	70	99	61	60	55	103	70	98	60	83	62	90	71	94	47	109	64	102	67
6	83	52	90	48	108	79	88	49	108	77	101	68	66	55	106	76	97	70	84	66	81	72	95	47	110	70	103	69
7	84	51	92	47	105	85	85	50	105	80	100	64	62	54	106	73	98	66	89	64	83	68	99	53	109	71	102	70
8	86	47	93	45	105	81	88	48	109	76	99	61	62	52	104	72	98	72	87	66	78	68	95	53	108	70	102	69
9	77	47	88	43	108	84	75	47	112	75	97	61	69	52	103	68	98	68	84	64	78	62	93	49	105	67	97	68
10	79	41	85	46	108	82	94	50	111	75	102	78	62	54	104	67	103	70	89	65	85	62	94	48	103	65	99	72
11	79	40	90	43	110	74	98	53	113	77	104	80	62	51	108	71	102	72	86	63	96	76	102	53	113	70	102	80
12	79	43	88	42	109	74	90	46	109	77	103	66	59	52	109	75	100	64	78	62	89	66	92	56	114	73	105	74
13	66	32	81	41	104	73	80	43	101	74	90	60	59	50	95	66	98	71	77	64	77	55	86	52	109	69	89	69
14	72	37	79	34	101	74	85	44	101	73	89	58	61	49	94	64	94	60	76	64	71	55	83	43	106	63	89	62
15	73	36	82	38	101	70	88	47	102	71	89	53	60	52	93	58	90	56	77	63	75	55	85	40	97	59	93	63
16	78	41	86	38	102	68	90	50	103	71	91	56	59	53	98	62	95	54	77	61	78	65	88	42	101	58	94	62
17	83	40	93	41	98	65	90	50	103	73	96	58	58	52	102	64	92	60	78	61	83	70	92	44	102	59	100	65
18	86	52	92	48	95	67	87	55	100	73	95	63	58	50	93	68	83	62	79	63	81	70	77	49	102	65	96	68
19	86	54	82	60	90	70	87	56	97	74	94	65	58	49	102	67	81	65	78	61	79	62	92	56	105	66	102	80
20	85	57	89	53	86	68	87	57	98	74	92	62	58	53	95	65	80	64	79	64	74	56	90	61	105	74	99	75
21	84	59	89	58	85	65	84	53	99	70	91	62	61	53	91	68	80	60	82	63	67	54	87	57	106	66	94	71
22	83	53	85	55	92	67	73	52	98	74	88	68	65	54	86	69	77	59	78	60	66	55	84	55	96	70	93	74
23	73	57	70	59	93	68	68	50	99	79	84	67	62	57	95	67	82	60	78	61	74	59	74	55	100	68	77	69
24	64	52	71	56	92	66	64	50	99	66	90	63	60	56	91	64	80	55	74	60	67	51	86	48	98	66	89	63
25	59	51	68	50	87	63	65	51	99	63	83	59	61	56	76	63	74	51	74	59	62	50	73	48	86	59	79	61
26	73	52	76	53	86	64	72	52	90	70	84	59	60	56	85	61	82	52	73	60	65	49	79	51	88	64	86	68
27	77	45	84	54	93	62	73	48	93	64	87	58	63	56	88	58	78	56	75	60	66	50	82	50	98	60	86	64
28	75	49	81	55	93	64	75	49	97	66	87	57	59	55	89	60	78	58	72	61	67	49	83	49	92	66	91	61
29	73	47	79	51	92	58	84	51	99	67	88	57	60	52	90	61	83	58	75	61	68	49	85	50	95	66	91	64
30	78	42	86	48	96	58	85	52	98	65	91	59	60	52	96	63	86	53	73	58	74	63	91	49	101	63	98	66
31	85	47	94	54	97	65	75	53	96	68	83	57	64	53	98	64	90	54	77	59	70	51	92	49	102	65	95	68
Mns.	76.7	46.4	83.8	47.8	98.2	70.1	80.5	48.7	101.9	71.5	92.1	61.9	61.2	53.2	96.0	65.8	89.5	61.3	79.2	61.8	75.2	59.1	87.2	49.6	101.7	65.0	94.0	67.7

Date.	California.																							
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.	
	Max.	Mi .	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	94	59	85	57	75	60	66	52	75	48	80	55	80	57	89	49	70	43	88	58	66	38	.....	.....	90	33
2	93	58	87	56	71	61	69	52	76	46	73	49	75	55	88	47	71	42	86	57	68	38	.....	.....	89	40
3	88	54	80	60	69	61	66	55	77	52	84	52	70	55	81	54	78	43	90	58	63	44	.....	.....	85	41
4	90	55	93	58	71	62	69	53	84	55	85	52	74	62	87	49	79	44	94	57	68	38	.....	.....	97	40
5	100	58	100	63	75	61	84	54	95	50	87	53	78	60	97	50	80	44	100	63	77	48	.....	.....	100	41
6	100	63	97	67	74	65	66	52	85	55	88	54	80	61	96	49	84	46	101	68	76	52	.....	.....	98	41
7	102	63	98	65	78	65	69	54	89	56	85	56	85	60	92	49	84	43	96	68	75	43	.....	.....	100	41
8	95	61	96	62	75	66	61	52	84	51	90	54	80	63	85	43	83	43	95	64	75	50	.....	.....	96	50
9	97	61	95	62	75	66	70	53	84	50	96	52	81	58	96	48	78	51	97	60	75	45	.....	.....	100	48
10	102	63	100	66	76	63	75	53	90	55	90	61	80	59	103	62	78	53	103	68	79	43	.....	.....	100	48
11	97	65	104	76	74	64	90	62	103	59	91	62	75	59	112	61	81	57	108	74	78	48	.....	.....	101	47
12	91	59	98	65	74	65	66	54	90	61	80	54	68	65	88	55	82	37	96	70	76	50	.....	.....	100	48
13	84	58	91	57	71	66	66	52	82	56	75	57	75	63	85	43	71	42	93	63	75	52	.....	.....	100	48
14	82	61	84	55	74	66	63	50	78	51	72	55	73	64	86	43	75	42	84	58	67	46	.....	.....	101	48
15	91	58	97	54	73	66	65	51	81	49	70	49	72	56	85	45	75	53	89	53	67	39	.....	.....	95	38
16	91	59	92	58	72	65	65	51	82	48	70	51	72	59	83	45	84	49	91	56	69	40	.....	.....	93	37
17	93	59	96	61	71	62	62	51	87	50	76	52	70	61	90	47	87	56	97	59	78	40	.....	.....	94	38
18	90	61	97	59	72	62	60	51	79	52	72	53	68	59	78	48	87	57	90	60	70	50	.....	.....	96	40
19	87	60	88	58	72	62	61	52	79	53	74	49	72	60	74	51	86	56	89	60	70	52	.....	.....	95	47
20	75	63	86	57	74	66	63	52	79	53	73	54	70	62	73	51	85	54	86	59	70	50	.....	.....	94	46
21	89	63	86	60	74	65	67	56	81	57	77	57	78	60	80	52	81	57	86	60	66	51	.....	.....	95	48
22	91	59	75	66	73	66	66	56	78	60	78	57	76	62	73	58	77	50	82	64	75	50	.....	.....	80	50
23	87	55	84	65	72	65	70	57	83	60	74	54	78	64	83	58	62	52	89	63	68	48	.....	.....	73	53
24	82	54	81	59	73	63	64	56	76	59	70	56	72	55	73	54	78	47	80	60	66	40	.....	.....	83	44
25	78	51	74	58	71	60	68	58	74	59	70	54	73	47	73	58	79	48	79	58	59	41	.....	.....	75	44
26	69	59	77	57	72	64	64	57	72	59	72	55	74	48	77	57	79	48	80	56	56	41	.....	.....	75	40
27	80	55	80	56	71	63	65	57	72	58	70	57	73	56	76	51	78	47	78	60	55	43	.....	.....	80	52
28	77	62	80	56	69	64	63	57	76	58	68	59	72	55	74	56	80	45	80	55	58	40	.....	.....	74	41
29	81	59	83	56	71	63	64	56	80	60	72	58	68	56	72	55	80	45	80	56	62	44	.....	.....	83	43
30	85	51	89	57	72	61	63	56	79	58	73	55	71	51	75	54	82	55	89	57	66	47	.....	.....	87	47
31	92	57	85	56	72	62	67	56	76	59	74	55	73	51	75	55	89	52	81	58	72	51	.....	.....	83	43
Mns...	88.8	58.8	88.6	60.1	72.8	63.5	66.9	54.2	81.5	54.7	77.7	54.5	74.4	58.2	83.8	51.5	79.5	48.4	89.6	60.6	69.2	45.2	.....	.....	90.7	44.0

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

CLIMATOLOGICAL DATA FOR JULY, 1913.

DISTRICT NO. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

GENERAL SUMMARY.

The distinguishing features of the month were heavy local rains during the last decade in eastern Oregon and southern Idaho and the wide ranges in temperature throughout the district. The heavy local rains came between the first and second cutting of alfalfa and therefore on the whole were beneficial. They also were a great help in supplementing the supply of irrigation water, and no shortage occurred, although fears had been entertained that later on there would not be enough. As opposed to the freezing temperatures that prevailed in the plateau sections about the middle of the month temperatures of 100° or more were of frequent occurrence in the low valleys between the 20th and 25th.

Owing to frequent showers in western Oregon and western Washington a large amount of hay could not be properly cured and many fields became overripe. The hay crop for the foregoing reasons did not turn out as well as expected. The weather on the whole was favorable for the grain harvest and the yields so far are satisfactory. The many thunderstorms during the third decade started numerous forest fires, but the heavy rains accompanying these storms put out most of the fires shortly after they had started, and there were not as many burning at the end of the month as usual.

There were no noteworthy delays in traffic or interruptions in construction work.

TEMPERATURE.

July, 1913, was notable for its extremes of heat and cold. Maximum temperatures of 100°, or above, were recorded at numerous stations on various dates, but principally on the 20th; these high temperatures were not confined to any one section but were general, except in western Montana, Wyoming, and along the coast of Washington and Oregon. In contradistinction to these high temperatures minimum temperatures below freezing occurred in many sections on several dates, the lowest, 22°, having been recorded on the 14th at two stations in central Idaho. The month averaged cooler than usual, being particularly so in western Montana, Idaho, southeastern Washington, and northeastern and southern Oregon, where the temperatures ranged from 0.3° to 8.3° below normal.

The mean temperature of the district, as determined from the records of 304 stations, was 65.1°, or 1° below normal. The highest temperature, 110°, was recorded on the 23d at Hanford, in southern Washington, at an elevation of 385 feet, and the lowest, 22°, occurred at Loon Creek and New Meadows, contiguous stations in Idaho, at elevations of 6,000 and 3,950 feet, respectively. The greatest daily range in temperature was 63°, at Moore, in southern Idaho, at an elevation of 5,700 feet, and at Yonna, in southern Oregon, at 4,146 feet elevation. The highest monthly mean, 76.1°, was also recorded at Hanford, Wash., and the lowest monthly mean, 51.6°, at Snake River, Wyo., at an altitude of 7,000 feet.

The following table shows for comparative purposes the mean temperature and departure from normal for the States of Oregon, Washington, and Idaho, and those portions of Montana and Wyoming in district No. 12 for the month of July during the last five years.

Years.	Oregon.		Washington.		Idaho.		Montana.		Wyoming.	
	Mean	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.
1909	62.5	−2.8	63.9	−2.6	66.2	−1.0	61.5	−2.4	57.8	−1.4
1910	66.5	+0.6	66.7	−0.1	71.0	+2.2	65.0	+1.7	61.3	+2.0
1911	68.4	+2.1	67.9	+0.9	67.5	−1.0	62.7	−1.7	56.8	−1.9
1912	64.7	−1.3	65.5	−0.7	65.2	−3.6	62.0	−3.7	55.7	−2.0
1913	65.1	−0.5	66.2	−0.4	65.7	−2.2	62.2	−2.8	56.0	−1.8

PRECIPITATION.

The precipitation for July was normal or slightly below in the territory adjacent to the Columbia River in Washington and Oregon, except near the coast, in extreme western Montana and along the Snake River in the first-named State; elsewhere the rainfall was above the average for the month, being unusually heavy in southeastern Idaho and southern and eastern Oregon, in some instances partaking of the nature of cloudbursts, at which time the precipitation in 24 hours was the greatest of record at several stations in these two States. Where these heavy downpours occurred on steep watersheds the floods caused considerable damage. In Montana, Wyoming, and Idaho the rainfall was fairly well distributed throughout the month; in Washington the rainfall occurred mostly during the first half of the month, with only scattered showers in the last decade at a number of stations in the eastern portion of the State, there being a period from the 15th to the 20th, inclusive, without precipitation; in Oregon the precipitation was mostly confined to the 3d and from the 20th to the 25th of the month, with occasional local rains during the remainder of the month.

The average precipitation for the district, as determined from the records of 399 stations, was 1.22 inches, which is 0.41 of an inch more than the normal. The greatest 24-hour rainfall, 3.13 inches, occurred at Vernon, Idaho, on the 24th, at an elevation of 5,050 feet. The greatest monthly amount, 6.46 inches, was recorded at Snake River, in Yellowstone Park, Wyo. No rain fell at Condon, and Grass Valley, Oreg., and at several stations in the State of Washington.

The average monthly precipitation with departure from normal for the month of July during the last five years is shown in the following table for the States of Oregon, Washington, and Idaho, and for those portions of Montana and Wyomong in District No. 12.

Years.	Oregon.		Washington.		Idaho.		Montana.		Wyoming.	
	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.
1909	1.20	+0.76	1.49	+0.83	1.24	+0.38	3.08	+1.92	1.40	+0.99
1910	0.17	−0.46	0.13	−0.60	0.37	−0.34	0.59	−0.66	1.02	+0.20
1911	0.08	−0.51	0.26	−0.46	0.20	−0.32	0.57	−0.68	0.35	−0.28
1912	0.65	+0.07	1.05	+0.22	1.15	+0.88	1.83	+0.51	2.80	+1.16
1913	1.19	+0.52	0.64	+0.09	1.92	+1.15	1.16	−0.17	3.15	+1.00

THE RIVERS.

Heavy local rains from the 22d to the 25th on the tributaries of the lower Snake River caused a small rise which was felt in the lower Columbia a few days later. These rains washed a large amount of soil into the streams and for several days the water was so charged with silt as to seriously interfere with salmon fishing.

The following table shows the highest and lowest stages, the dates on which they occurred, and the mean and normal stages at the river stations in this district for July:

Station	River.	Highest.	Date.	Lowest.	Date.	Mean.	Normal.
Albany	Willamette	5.9	5th	2.0	31st	3.4	2.1
Salem	do	4.7	5th[1]	0.9	31st	2.5	1.3
Wilsonville	do	7.0	1st	2.5	31st	4.5	3.2
Oregon City	do	4.4	1st[1]	1.2	18th	2.8	.....
Portland	do	20.6	1st	9.3	28th[1]	14.3	13.3
Jefferson	Santiam	3.5	1st[1]	1.4	29th[1]	2.3	1.5
McMinnville	Yamhill	1.0	1st[1]	0.2	30th[1]	0.5	0.6
Cazadero	Clackamas	2.8	1st	1.5	30th[1]	2.0	.....
Kamiah	Clearwater	8.8	2d	4.5	30th[1]	6.0	.....
Weiser	Snake	7.5	5th	2.5	23d	4.9	4.7
Lewiston	do	9.3	7th	2.4	24th[1]	5.7	5.5
Riparia	do	9.4	1st	3.8	26th	6.3	5.6
Bonners Ferry	Kootenai	20.6	1st	10.5	30th[1]	14.7	14.9
Newport	Pend d'Oreille	18.7	1st	6.6	31st	12.1	8.8
Northport	Columbia	29.3	1st	13.2	31st	20.0	20.4
Wenatchee	do	42.2	1st	24.0	31st	31.1	29.9
Umatilla	do	19.8	1st	11.6	31st	15.0	14.8
The Dalles	do	33.5	1st	17.5	31st	24.1	24.4
Cascade Locks	do	25.9	1st	13.0	27th[1]	18.1	17.5
Vancouver	do	20.9	1st	9.6	28th	14.7	14.0

[1] The stage was observed on more than one date.

MISCELLANEOUS PHENOMENA.

Thunderstorms, occasionally with hail, were quite prevalent during the last decade in southern Idaho and eastern Oregon. Two fatalities from lightning were reported from southwestern Oregon and one from northeastern Washington; lightning was also the cause of several forest fires in the first named State which were subsequently extinguished by the heavy rains.

The prevailing winds were mostly northwesterly, with maximum velocities reported as follows: North Head, 54 miles from the south, and Tatoosh Island, 60 miles from the southwest, both occurring on the 6th. A wind storm partaking somewhat of the nature of a tornado occurred on the same date in the northeast suburbs of the city of Seattle, Wash., and while scarcely over a minute in duration caused considerable damage to buildings, trees and shrubbery. Dust storms were reported from stations in eastern Washington on the 6th which were injurious to standing grain.

Some frosts were noted during the second decade at stations in Montana and Oregon, and freezing temperatures were of general occurrence in the elevated portions of Idaho on the 14th which were slightly damaging to growing crops.

THE ANNUAL RISE OF THE COLUMBIA RIVER

[Portland, Oreg., Aug. 11, 1913.]

By THOMAS R. REED, Assistant Observer.

Weather conditions in the Columbia River watershed during the winter and spring of 1913 were favorable for a large run-off later in the year. That a larger flow of water than usual would occur in the early summer was foreseen by officials in the Weather Bureau and the Dominion meteorological service, and their estimates in this connection were published in the March issue of the Snowfall Bulletin. In order that the public might be informed as to conditions of snowfall in British Columbia, a supplement to the regular snowfall bulletin was issued on April 22, containing tabular data and a short written summary furnished by the Dominion meteorological service.

Taking the wet season as a whole the snowfall was not large as compared with normal amounts, but what there was did not undergo premature melting, for the low temperatures of the spring months conserved what had fallen until summer was almost at hand. When the first pronounced warm spell of any duration came there was a large accumulated deposit ready to swell the tributaries of the Columbia River. The following table, compiled from the Monthly Weather Review, shows the temperature and precipitation over the Northern Plateau during the snowfall season:

Mean temperature and precipitation over the Northern Plateau.

	Mean temperature.	Departure.	Mean precipitation.	Departure.
	°	°	*Inches.*	*Inches.*
December, 1912	31.2	−0.1	0.85	−0.8
January, 1913	25.2	−2.7	1.94	+0.4
February, 1913	25.8	−5.4	0.88	−0.7
March, 1913	37.5	−2.8	1.51	0.0
April, 1913	49.2	+0.3	1.14	−0.2

The annual high water in the Columbia finds its origin in two principal sources. The more important of these is the upper Columbia itself, augmented by the Kootenai and Pend d'Oreille tributaries. The other source is the Snake River, rising in Yellowstone Park and augmented near its lower end by the Salmon and Clearwater Rivers. The upper Snake River carried about the usual amount of water this year, but below the entrance of the Salmon River it reached the highest stages recorded since 1899.

Of the tributaries referred to as augmenting the upper Columbia, the Kootenai began to rise first and continued to increase rapidly reaching a maximum early in June. The Pend d'Oreille rose more slowly reaching a maximum 10 or 15 days later. Both streams fell gradually and united in maintaining a high stage in the lower Columbia for a long time. The Kootenai influenced the Columbia more than the Pend d'Oreille. It is said that the stages reached this year in that stream exceeded any on record, and this is not unlikely because the conditions of subnormal temperature described as prevalent over the whole Northwest during the spring were accentuated in in the Kootenai country, while the winter's snowfall there, unlike that on the Northern Plateau, was in excess of the average.

As usual the Snake River was carrying its maximum volume earlier than the Columbia and had begun to recede at the time the Columbia was showing its most rapid increase. In this way disastrous stages in the lower Columbia were avoided, but notwithstanding this the stages in the lower river were the highest since 1903. The 15-foot stage at Portland, which is rated as

the flood stage there, was reached on May 25 and the water remained above that point until July 14, a period of 50 days. It was above the 20-foot stage for over a month, which meant that nearly all the basements in the business district were wholly or partially inundated during that time, except where pumps were employed to keep them dry. The highest stage recorded was 24 feet on the evening of June 8, just equaling the maximum stage of the flood of 1903.

The industries in the city of Portland which were chiefly affected were the warehouse and dock interests along the water front, and the wholesale and retail houses which depended on their basements for storage or other purposes. These interests were in close touch with the local office of the Weather Bureau and received advice which enabled them to act intelligently in moving their merchandise to safer levels. Telegraph and telephone companies sustained some losses, chiefly to pole lines along the river. The underground system of the electric company was somewhat interfered with, but the loss in this direction was only nominal.

The heaviest financial losses occurred outside the city and were sustained by the railroads operating along the Columbia River and by the Columbia River fisheries. The latter are put to considerable expense each year repairing their fish wheels which have been damaged by drift material, but their main loss is less direct and not so easily estimated. It is involved in the loss of pack occasioned by the discontinuance of fish wheels, seines, and traps, for when the river is rising rapidly there is so much drift that none of these appliances can operate, and gill net fishermen are interfered with similarly.

Those depending on farm land and pasturage at low elevations are prepared to experience some loss each year from high water. Their loss is principally the loss of crops and the use of their cows, since the proceeds from the sale of milk and cream go to the party looking after the stock, when the owners themselves have no high land to pasture them on. Money loss from destroyed crops was large in many localities this year, but this may be offset to some extent by the crop planted after the flood.

Flood predictions were issued twice daily at the Weather Bureau office in Portland, and were given wide distribution by means of the weather map, the daily press, and the telephone. The circulation of the daily weather map was almost doubled during the time of high water, and the telephone was in such constant use that an employee was detailed for a time to the exclusive duty of answering calls. The forecasts were quite accurate and gave general satisfaction.

An interesting attempt to deduce a formula for forecasting river stages at The Dalles one day in advance from stages recorded at Lewiston, Idaho, on the Snake River, and at Wenatchee, Wash., on the Columbia, has been made by engineers in the United States Geological Survey. It is based on the assumption that an increase of 1 foot in gage height gives an increase in discharge of 12,000 second-feet at Wenatchee and 18,000 second-feet at Lewiston and at The Dalles.

Statistics of estimated money loss from flood and amount saved by timely flood warnings.

(1) Money value of property destroyed, or amount of damages, including railroads and excluding crops	$107,388.47
(2) Money value of crops destroyed or amount of damage.	92,645.00
(3) Money value of losses occasioned by enforced suspension of business through flood, including wages of employees	91,220.00
(4) Cost of removing or protecting goods in flooded basements and warehouses (in city of Portland)	4,321.00
(5) Money value of property saved by flood warnings of the Weather Bureau	101,370.00

FLOOD AT BOISE, IDAHO.

By EDWARD L. WELLS, Section Director.

On the afternoon of July 24, 1913, there occurred a most unusual flood at Boise. The city is situated on the river bottom, which slopes gently from the foothills of the Boise Mountains to the Boise River. Most of the gulches opening from the hills adjacent to the city are dry, except when the snow is melting or when unusual precipitation occurs. Hulls Gulch naturally carried a small flow of water, but most of this has been diverted to contribute to the water supply of the city and of the military post. The water coming down this gulch originally found its way to the river, over the surface, by a rather poorly defined channel, the course of which changed frequently, owing to the heavy deposit of sand carried. In recent years the small remaining flow has been confined in a wooden flume for several blocks and has then been turned into the sewer.

The latter part of July and fore part of August usually pass without the occurrence of any considerable amount of rain at Boise. The normal amount for the period from July 17 to August 11, inclusive, is but 0.08 of an inch. On July 23, 1913, rain began in the afternoon and from that time until the evening of the 26th showers were of frequent occurrence. On the 24th rain fell almost continuously from 6.25 a. m. until after midnight. At 2.42 p. m. the intensity of the rainfall suddenly increased and in the next 7 minutes 0.13 of an inch of rain fell. After the heavy rain was over in the city the shower could be seen passing over the hills to the northeast of the city. About 3.45 p. m. the water began to flow out of Hulls Gulch in such quantities that the flume was no longer sufficient to carry it, and in a few minutes the water came over the dam at the head of the flume and overspread that part of the city. An area approximately three blocks wide and extending from the mouth of Hulls Gulch to Fairview Addition was more or less seriously flooded. Cellars were filled with water and lawns were covered with sediment. The damage was worst above the Perrault Canal, where water entered many houses and many lawns were ruined. The flow ceased almost as suddenly as it had begun, and by 6.30 p. m. the water had receded from most of the flooded district.

Later in the evening the writer made a short trip up the gulch, locating the high-water marks and ascertaining that practically the entire flow had come from above the upper reservoir of the Boise Artesian Hot & Cold Water Co., which is about 1 mile above the mouth of the gulch.

On the afternoon of the 26th the writer walked over the greater part of the watershed, to note the effects of the storm. The entire watershed above the reservoir showed evidence of heavy precipitation, but there was no evidence o any particularly heavy downpour in any one place. The erosion was greatest about 4 miles above the mouth of the gulch, but this was probably due to the steep pitch and sandy nature of the soil in that section. That a great quantity of water had fallen was evidenced by the fact that pools were standing practically on the tops of the ridges, and even the crowns of the ridges bore marks of running water.

On the afternoon of the 29th Mr. J. B. Marcellus, deputy city engineer, took measurements from which to compute the flow of water. His report follows:

In company with Edward L. Wells, section director of the Weather Bureau, we attempted an approximation of the quantity of water that came down Hulls Gulch, due to an extremely heavy downpour of rain on the afternoon of July 24.

We went up the gulch to where the water was confined to a channel approximately 56 feet wide, and the point of cross section was taken

directly opposite of what is called Frank Eastman Park, and about 1,000 or 1,500 feet above the Boise Artesian Hot & Cold Water Co.'s (middle) reservoir. The channel at this point is fairly regular and nearly straight for about 1,000 feet. We took the cross section with an 18-inch Y level and found the bottom to be practically level. The high-water marks were determined by the wash indicated in the nearly perpendicular side of the channel, and were indicated by slight demarcations and the deposit of slight débris. The channel at this point is practically entirely in sand, although some bowlders, up to 6 or 8 inches in diameter, show in the bottom, about half bedded.

That the velocity must have been very great is indicated by a stone about 2 feet long by 8 inches square, which evidently had been washed down by the water. The amount of water running into the channel can not be determined with any degree of accuracy, and the results which we obtained are to be taken only as an approximation.

The width of the channel, as stated, was 56 feet, and the average depth of water 5.1 feet, so that the water area was 285.6 square feet. A very uniform grade of 3 feet per hundred, or 1 foot in 33⅓, was found. Using n=35, in Kutter's formula gives a velocity of 19.9 feet per second, and a quantity of 5,712 cubic feet per second. Using n=40 feet in Kutter's formula gives a velocity of 17.4 feet per second, and a quantity of 4,998 cubic feet per second.

The values of "n" were taken from Hand Books of Trautwine, Frye, and Merriam. Trautwine says: "n should be taken as 30 in canals in bad order and regimen and strewn with detritus." Frye says: "n=35 for canals and rivers in bad order with great quantities of stones and weeds, and use n=40 for rivers in extremely bad condition." Merriam says: "Use n=35 in channels in gravel in bad condition, strewn with stones and detritus." Thus the use of n=35 can be construed as fairly accurate, and n=40 as conservative.

The streets in the north end of town, which were flooded, are nearly all 60 feet wide, and if five streets were flooded to a depth of 1 foot the quantity of water would be nearly the same as that found by the measurements indicated above.

Inquiry as to the time of beginning and ending of the flood leads to the conclusion that it was nearly at its maximum height for approximately 45 minutes, after which it suddenly receded. It is believed that an estimate of 5,000 cubic feet per second for a period of 40 minutes would be fairly representative of the total amount of water. This would make 12,000,000 cubic feet, or 275 acre-feet. The area of the watershed above the upper reservoir is approximately 5 square miles, hence the run-off would represent an average rainfall over the watershed of 1.05 inches. Mr. Clyde Baldwin, in charge of the Water Resources Branch of the United States Geological Survey in Idaho, estimates that for such a heavy rain on so steep a slope as is found over most of the Hulls Gulch watershed the run-off would be 50 per cent of the total rainfall. This would give an average rainfall over the watershed of 2.10 inches.

The adjacent gulches discharged a considerable amount of water, but not sufficient to cause serious damage, hence it is probable that the heavy portion of the storm was confined to the Hulls Gulch watershed. This being true, it is probable that part of the watershed received more than the average amount, while other parts would receive less. There is, however, nothing to indicate the occurrence of anything more than a very heavy shower, and had it not been for the steep slope of the country and the narrow outlet of the gulch, which concentrated it, the storm would not have been classed as a cloudburst.

A notable feature of the storm was that it was not accompanied by thunder.

The closing storm of the rainy period reached its greatest intensity about 5 p. m. on the 26th, when the heaviest short downpour in the history of the station occurred. The rainfall amounted to 0.13 of an inch in 2 minutes, 0.23 of an inch in 5 minutes, and 0.26 of an inch in 10 minutes. In the hills, a short distance from the city, the rainfall at this time was very slight.

WINDSTORM AT SEATTLE, WASH.

By G. N. SALISBURY, Section Director.

A sharp wind squall, or, as some considered it, a small whirlwind of a nature resembling a tornado of small intensity and extent, occurred at Madison Park, in the northeast suburbs of Seattle, on the 6th, at about 4 p. m. The disturbance was scarcely over a minute in duration. A black, threatening cloud (several were sure it was a funnel-shaped one) at a height of 25 to 75 feet, swept rapidly down East Madison Street toward the northeast to the lake (Lake Washington) shore at Forty-third and Madison. At the moment of its arrival a wind blast sprung up instantly and blew with violence. Some said the roar of the wind was terrific. No one was killed or injured, but two or three persons were blown down; others saved themselves by clinging to fences, etc. Several trees were broken in twain, and there was much damage to trees and shrubbery in the vicinity. A tower on an old pavilion in the park was blown down; estimated damage $500. The damage to trees, shubbery, etc., in the little park was estimated at $200. A large chestnut tree was broken short off (no evidence of twisting) about half way up at a point about 9 or 10 inches in diameter. A large branch, 6 or 7 inches in diameter, was broken from a sycamore tree, and a large cottonwood tree was broken short off half way up (some 40 feet from ground) at a point 7 or 8 inches in diameter All of these fell toward the north.

At Fortieth and Madison, the Thomas Place, or "Old Homestead," several trees in a yard, full of large trees and shrubbery, were broken off. A large locust was shattered. A fir, or spruce, about 9 or 10 inches in diameter, was broken short off 25 or 30 feet from the ground. Several other trees in the yard were broken off, and many branches of a line of cottonwoods in front were stripped off. Four panels of an old, decayed fence (picket) were prostrated. Everything fell toward the north. A greenhouse of the Washington Floral Co. had many panes of glass broken. At the Hill ostrich farm, Forty-first and Madison, 20 rods of a close boarded fence were prostrated; the fence was old and shaky.

There was to me, when I investigated next morning, no evidence of a whirl, but every evidence of a straight-line squall.

TABLE 1.—*Climatological data for July, 1913. District No. 12, Columbia Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Montana.																				
Anaconda	Deer Lodge	5,330	11	59.6	− 3.0	89	6	31	14	40	1.25	− 0.01	0.47	0	6	8	19	4		C. D. Demond.
Butte	Silver Bow	5,716	18	61.3	− 2.1	88	6†	34	14	38	1.69	+ 0.44	0.67	0	5	17[a]	4[a]	9[a]	nw.	J. R. Wharton.
Columbia Falls	Flathead	3,100	17	63.0	− 0.7	90	6†	32	14	50	1.19	− 0.51	0.37	0	8	18[a]	8[a]	4[a]	sw.	J. M. Grist.
Como	Ravalli	3,750	4	65.0	.....	95	6†	36	14	39	1.07	.....	0.42	0	6	19	8	4	.....	Hiram Platt.
Dayton	Flathead	2,925	8	63.8	.....	94	19	37	14	40	0.60	− 0.74	0.20	0	4	24	2	5	.....	A. J. Ruechell.
Deer Lodge	Powell	4,509	1	.....	.....	.....	.....	.....	.....	.....	1.11	.....	0.41	0	5	19	11	1	.....	H. B. Grant.
East Anaconda	Deer Lodge	5,500	7	60.0	.....	90	6	36	14	38	1.72	.....	.....	0	10	8	19	4	n.	C. D. Demond.
Fortine	Lincoln	2,975	7	60.6	.....	88	6†	32	3†	55	0.99	.....	0.25	0	10	13	10	8	w.	Mike Petery.
Hamilton	Ravalli	3,524	10	64.2	− 1.9	95	6	38	14	41	0.59	− 0.32	0.12	0	8	22	1	8	n.	Hamilton Chamber of Com.
Hat Creek	Powell	6,000	3	.....	.....	.....	.....	.....	.....	.....	2.39	.....	0.65	0	11	7	18	6	w.	M. K. Landreth.
Haugan	Missoula	3,150	1	61.0	.....	93	19†	31	17	55	0.65	.....	0.27	0	9	12	17	2	w.	U. S. Forest Service.
Heron	Sanders	2,261	1	62.8	.....	96	21	34	14	50	0.96	.....	0.38	0	10	14	16	1	w.	E. Knott.
Kalispell	Flathead	2,965	14	61.8	− 2.5	91	20	36	30	40	0.38	− 0.46	0.14	0	5	15	12	4	w.	U. S. Weather Bureau.
Libby	Lincoln	2,075	3	63.2	− 1.1	100	20	33	15	59	0.64	− 0.64	0.31	0	8	16	7	8	.....	U. S. Forest Service.
Missoula	Missoula	3,225	34	64.6	− 2.4	98	20	33	14	48	1.03	− 0.08	0.34	0	13	.....	.....	.....	sw.	U. S. Weather Bureau.
Ovando	Powell	4,050	13	58.4	− 8.3	91	21	28	14	45	1.39	+ 0.27	0.27	0	8	0	31	0	w.	S. B. Muchmore.
Philipsburg	Granite	5,273	9	59.4[f]	.....	92[f]	20	28[f]	14	51[f]	1.27	.....	0.45	0	7	17[f]	5[f]	3[f]	sw.	G. T. Bramble.
Plains	Sanders	2,473	14	64.4	− 1.1	94	20	35	14†	43	1.46	+ 0.05	0.58	0	10	5	26	0	sw.	James M. Self.
Pleasant Valley	Flathead	3,500	5	57.3	.....	89	19	26	14	54	0.69	.....	0.23	0	8	20	6	5	w.	A. D. Stillman.
Polson	....do	2,920	5	65.6	.....	87	20†	38	30	40	1.45	.....	0.48	0	5	.....	.....	.....	.....	F. P. Brown.
St. Ignatius	Missoula	2,700	7	63.9	.....	91	20	37	16	44	1.36	.....	0.50	0	9	22	5	4	.....	U. S. Reclamation Service.
Saltese	....do	3,600	8	.....	.....	.....	.....	.....	.....	.....	1.56	.....	0.77	T.	7	19	0	12	w.	Martin S. Pixley.
Stevensville	Ravalli	3,500	1	63.2	.....	95	6	32	14	46	0.45	.....	0.20	0	5	22	8	1	w.	University Orchard Co.
Thompson Falls	Sanders	2,424	1	63.7	.....	96	20	36	14†	49	2.94	.....	1.05	0	10	23	2	6	w.	U. S. Forest Service.
Trout Creek	....do	2,375	1	.....	.....	.....	.....	.....	.....	.....	1.05	.....	0.55	0	3	23	3	5	sw.	James Hylent.
Victor	Ravalli	3,537	....	64.6	.....	95	6	35	14	42	0.35	.....	0.12	0	4	26	3	2	nw.	R. W. Fisher.
Willow Glen St'k Farm	Deer Lodge	5,064	2	59.2	.....	86	10†	30	4†	52	.....	.....	.....	0	....	22	6	3	ne.	G. E. Luce.
Wyoming.																				
Afton	Lincoln	6,200	9	59.2	.....	86	6	30	31	47	1.35	.....	0.35	0	8	21	3	7	.....	A. V. Call.
Alta	....do	6,500	3	56.0	.....	84	7†	27	14	47	3.34	.....	1.22	0	15	15	8	8	sw.	Mrs. Lucy Brown.
Bechler River	Yellowstone Park.	6,500	1	.....	.....	.....	.....	.....	.....	.....	3.80	.....	0.70	0	11	20	0	11	.....	U. S. Army.
Bedford	Lincoln	5,900	13	57.6	− 1.8	83	9	29	31	44	1.84	+ 1.00	0.62	0	8	21	2	8	w.	C. G. Heiner.
Moran	....do	6,770	1	55.7	.....	79	9†	30	14	42	2.45	.....	1.00	0	10	9	16	6	.....	U. S. Reclamation Service.
Snake River	Yellowstone Park.	7,000	7	51.6	.....	78	24	26	14	42	6.46	.....	2.56	0	17	15	10	6	s.	U. S. Army.
Nevada.																				
San Jacinto	Elko	.....	8	58.0	.....	92	6†	18	13	61	1.53	.....	0.42	0	8	18	8	5	n.	F. W. Marchant.
Utah.																				
Standrod	Boxelder	.....	8	63.2	.....	85	6†	39	14	37	1.84	.....	0.39	0	11	20	7	4	sw.	T. B. Jones.
Idaho.																				
Albion	Cassia	4,650	10	63.6[b]	− 2.7	93[b]	9	35[b]	13†	49[b]	1.84	+ 1.20	0.50	0	7	.....	.....	.....	w.	C. E. Bocock.
Almo	....do	.....	3	.....	.....	.....	.....	.....	.....	.....	3.63	.....	0.60	0	12	15	2	14	.....	Wm. D. Cahoon.
American Falls	Power	4,341	21	69.4	+ 0.3	97	12	32	14	60	2.37	+ 1.69	0.98	0	8	21	10	0	ne.	Geo. Stoll.
Arrowrock	Boise	3,100	1	70.8	.....	102	6	38	14	48	3.31	.....	1.40	0	6	24	3	4	w.	U. S. Reclamation Service.
Blackfoot	Bingham	4,503	17	65.1	− 2.6	92	6†	33	14	50	2.20	+ 1.54	0.71	0	8	17	12	2	sw.	E. A. Dowd.
Blackfoot Dam	Bannock	6,200	3	60.2	.....	85	7	33	12†	45	2.52	.....	0.50	0	12	16	4	11	sw.	S. C. Waddell.
Bogus Creek	Boise	4,200	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. P. Ingraham.
Boise	Ada	2,739	27	70.2	− 2.6	98	6	42	14	37	2.01	+ 1.83	0.85	0	7	16	8	7	nw.	U. S. Weather Bureau.
Boise King	Elmore	.....	....	63.0	.....	94	6	27	14	50	4.15	.....	1.00	0	9	17	8	6	.....	A. W. Stevens.
Bonners Ferry	Bonner	1,850	6	62.2	.....	94	19†	37	3	47	1.13	.....	0.28	0	5	21	7	3	sw.	W. H. Heideman.
Boulder Mine	Boise	4,800	3	.....	.....	.....	.....	.....	.....	.....	4.20	.....	1.49	0	11	23	4	4	.....	Patrick Moriarty.
Buhl	Twin Falls	3,800	6	68.2	.....	96	6	38	14	45	2.29	.....	1.35	0	5	17	11	3	w.	S. C. Orr.
Caldwell	Canyon	2,372	8	69.2	.....	97	6	37	14	44	3.55	.....	2.50	0	7	15	13	3	w.	Wm. J. Boone, D. D.
Caldwell Exp. Sta §	....do	.....	1	68.0	.....	98	6	37	14	45	1.82	.....	1.16	0	5	.....	.....	.....	.....	Caldwell Experiment Sta.
Cambridge	Washington	2,651	17	68.6[a]	− 3.4	100[a]	20	34[a]	14	50[a]	1.10	+ 0.73	0.45	0	4	.....	.....	.....	sw.	Chas. H. Shepherd.
Cedar Creek Dam	Twin Falls	5,220	2	.....	.....	.....	.....	.....	.....	.....	2.33	.....	0.49	0	10	17	11	3	nw.	Robert Hoffman.
Chesterfield	Bannock	5,424	16	61.6	− 0.3	92	19	30	13	54	2.26	+ 1.73	0.91	0	12	11	9	11	.....	Chas. S. West.
Clarks Fork	Bonner	2,084	1	63.1	.....	89	19	39	14	37	0.85	.....	0.30	0	8	16	10	5	.....	Wm. Potter.
Clyde	Custer	6,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. L. Sutcliffe.
Coeur d'Alene	Kootenai	2,157	18	67.4	+ 0.4	98	19	41	14	43	1.05	+ 0.34	0.53	0	5	.....	.....	.....	.....	J. H. O'Rourke.
Council	Adams	3,059	1	67.8	.....	96	19†	37	14	42	1.36	.....	0.44	0	7	17	9	5	.....	F. L. Featherston.
Culdesac	Nez Perce	1,520	4	69.0	.....	102	20	37	14	49	0.37	.....	0.13	0	4	14	16	1	.....	Mrs. B. B. Caldwell.
Deary	Latah	2,854	1	63.7	.....	94	19†	35	30	48	0.37	.....	0.22	0	4	18	11	2	sw.	W. J. Davis.
Dent	Clearwater	1,350	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Emil Schuessler.
Driggs	Fremont	6,097	6	57.8	.....	83	6†	31	14	45	4.61	.....	1.73	0	10	13	4	14	sw.	Walter H. Durrant.
Emmett	Canyon	2,350	6	72.4	.....	102	20	40	14	44	2.33	.....	1.23	0	6	19	7	5	w.	U. S. Forest Service.
Forney	Lemhi	6,000	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. B. Merritt.
Garnet	Elmore	2,575	13	75.2	− 3.4	104	6†	44	14	44	2.32	+ 2.00	1.70	0	3	20	7	4	e.	Asa A. Kenison.
Geneva	Bear Lake	6,171	4	.....	.....	.....	.....	.....	.....	.....	1.84	.....	0.87	0	5	18	10	3	.....	F. W. Boehme.
Glenns Ferry	Elmore	2,569	4	73.6	.....	105	6†	33	14	57	1.39	.....	0.50	0	5	24	6	1	.....	I. E. Perkins.
Gooding	Gooding	3,572	3	68.6	.....	99	9	31	14	51	0.73	.....	0.51	0	5	21	6	4	w.	John Krall, jr.
Grace	Bannock	5,400	6	66.4	.....	98	6	36	12†	50	.....	.....	.....	0	....	12	11	8	.....	E. W. Joy.
Grand Forks	Shoshone	3,000	3	59.2	.....	90	19†	27	14	57	0.62	.....	0.40	0	3	.....	.....	.....	w.	Claget Sanders.
Grandview	Owyhee	2,300	3	72.6	.....	103	6†	41	13	50	1.37	.....	0.35	0	5	23	3	5	nw.	Harvey E. Hanna.
Grimes Pass	Boise	5,200	3	.....	.....	.....	.....	.....	.....	.....	1.79	.....	0.93	0	9	.....	.....	.....	.....	Joseph M. Clarke.
Guffey	Owyhee	2,381	4	75.0	.....	102	20	41	14	46	0.64	.....	0.34	0	4	26	4	1	w.	Fred Perry.
Hailey	Blaine	5,347	10	64.2	− 2.8	93	9	32	14	44	1.62	+ 1.00	0.91	0	8	15	11	5	sw.	U. S. Forest Service.
Hollister	Twin Falls	4,550	1	65.6[a]	.....	94[a]	6†	34[a]	14	45[a]	1.65	.....	0.62	0	10	13	17	1	w.	J. W. Bouton.
Hotspring	Owyhee	2,590	7	72.8	.....	100	8†	42	14	46	1.70	.....	1.20	0	3	25	3	3	.....	J. M. Waterhouse.
Idaho Falls	Bonneville	4,742	18	66.2	− 1.1	96	19	33	14	46	1.86	+ 1.21	0.99	0	10	19	7	5	ne.	Dr. T. M. Bridges.
Indian Cove	Owyhee	.....	....	73.2	.....	104	8	35	14	54	1.82	.....	1.65	0	4	25	5	1	sw.	Capt. O. M. Carter.
Indian Valley	Adams	2,999	4	.....	.....	.....	.....	.....	.....	.....	2.09	.....	0.69	0	9	23	5	3	n.	A. M. Henke.
Irwin	Bonneville	6,500	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Eva Buckland.
Kellogg	Shoshone	2,305	8	63.4[b]	.....	97[b]	19	35[b]	14	50[c]	1.75	.....	0.79	0	10	22	0	9	.....	W. McM. Huff.
Kilgore	Fremont	.....	....	55.8[b]	.....	84[b]	19	28[b]	14	46[b]	8.00	.....	3.50	0	7	.....	.....	.....	e.	W. H. McCormick.
Kirkham	Boise	4,200	3	.....	.....	.....	.....	.....	.....	.....	2.42	.....	0.85	0	4	14	7	10	w.	Mrs. Josie B. West.
Kooskia	Idaho	1,261	4	69.2	.....	103	20	35	14	55	0.66	.....	0.30	0	3	16	14	1	.....	U. S. Forest Service.
Lakeview	Bonner	2,250	15	64.4	− 0.7	89	21	41	30	37	1.90	+ 0.76	1.00	0	7	17	8	6	sw.	E. D. Faust.
Landore	Adams	5,300	8	58.1	.....	89	20	29	14	45	1.43	.....	0.45	0	7	20	10	1	.....	Mrs. Emma L. Brown.
Leadore	Lemhi	.....	1	57.0	.....	88	10	28	30	51	.....	.....	.....	0	....	.....	.....	.....	s.	Tom Keating.

TABLE 1.—*Climatological data for July, 1913. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Idaho—Continued.																			
Lewiston	Nezperce	757	19	72.9	− 0.7	105	20	47	14	42	0.10	− 0.32	0.08	0	2	19	10	2	e.	U. S. Weather Bureau.
Little Camas	Elmore	5,000	3	.....	.....	.....	.....	.....	.....	.....	2.99	.....	1.34	0	8	13	7	11	w.	Solon McCoy.
Loon Creek	Custer	6,000	3	56.6	.....	89	6†	22[a]	14	58[a]	1.65	.....	0.50	0	11	13	8	10	sw.	Mrs. Mary Williams.
Mackay	do	5,897	5	62.1	.....	90	10	32	13	47	2.77	.....	0.83	0	8	21	8	2	nw.	U. S. Forest Service.
Malad	Oneida	4,700	....	66.4	.....	93	7	37	31	50	0.98	.....	0.34	0	8	11	17	3	.....	Uther Jones.
Meridian	Ada	2,657	2	69.8	.....	97	20	37	14	45	2.17	.....	1.10	0	7	17	10	4	nw.	A. W. Garrett.
Mesa §	Adams	3,275	2	68.5	.....	94	19	42	2	38	.....	.....	.....	0	....	10	0	21	n.	I. S. Carter.
Middle Fork	Idaho	1,397	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jos. McGhee.
Milner	Twin Falls	4,110	9	69.0	− 2.5	94	8†	38	14	46	1.72	+ 1.40	0.90	0	6	17	10	4	w.	J. K. Young.
Moore	Blaine	5,700	12	62.6	− 1.8	101	16	30	14	63	1.04	+ 0.44	0.48	0	6	23	3	5	sw.	Chas. B. Lemon.
Moscow	Latah	2,748	20	64.0	− 2.4	96	21†	36	14	47	0.19	− 0.52	0.12	0	2	19	7	5	e.	University of Idaho.
Mountain Home	Elmore	3,150	7	68.4	.....	101	5	29	14	55	2.63	.....	1.65	0	5	17	6	8	nw.	Mrs. Ellen Manion.
Murtaugh	Twin Falls	.....	6	66.6[d]	.....	92[d]	9	36[d]	14	43[b]	0.82	.....	0.54	0	4	15	14	2	w.	J. E. Steinour.
New Meadows	Adams	3,950	8	60.2	.....	93	19[a]	22	14	54	1.32	.....	0.41	0	7	16	13	2	s.	Lee Highley.
Nezperce	Lewis	3,082	3	61.0	.....	91	18	32	13	45	0.72	.....	0.29	0	4	24	5	2	.....	P. Mitchell.
Oakley	Cassia	4,700	19	66.2	− 4.1	96	9	33	24	50	1.85	+ 1.23	0.46	0	9	11	20	0	.....	John Adams.
O'Hara Bar	Idaho	1,557	2	.....	.....	98[e]	23	37[e]	14	48[e]	1.05	.....	.....	0	.....	.....	.....	.....	.....	J. D. Agnew.
Orofino	Clearwater	1,027	8	68.1	.....	101	20	38	14	51	0.35	.....	0.24	0	6	19	12	0	.....	Geo. Alteneder.
Paris	Bear Lake	5,946	18	59.0	− 3.9	86	20†	34	2†	45	0.76	+ 0.03	0.45	0	4	18	12	1	sw.	John Norton.
Payette	Canyon	2,159	21	69.8	− 3.6	99	20	39	14	45	2.45	+ 2.05	1.50	0	7	16	10	5	n.	E. F. Allen.
Pierson	Custer	7,000	4	54.0	.....	81	12†	23	15	54	3.42	.....	1.29	0	7	17	7	7	s.	David P. Clarke.
Pleasant Valley	Ada	3,000	5	68.2	.....	99	6	32	14	51	2.31	.....	1.07	0	6	22	3	6	nw.	C. E. Friedrich.
Pocatello	Bannock	4,483	13	67.4	− 3.9	91	8	42	14	40	2.23	+ 1.60	0.71	0	10	12	11	8	se.	U. S. Weather Bureau.
Pocatello Nursery	do	5,396	6	62.2	.....	89	8	33	14†	47	4.32	.....	2.37	0	17	10	12	9	sw.	Mrs. Fannie E. Say.
Poplar	Bonneville	5,500	3	63.2	.....	90	21	32	14	46	2.71	.....	1.77	0	5	22	6	3	sw.	C. M. Lawrence.
Porthill	Bonner	1,665	23	62.9	− 2.8	90	20	39	30	38	1.34	+ 0.19	0.51	0	10	20	5	6	.....	H. A. French.
Priest River Experiment Station:																				
No. 1	do	2,500	1	61.4	.....	89	20†	38	14	38	1.30	.....	0.33	0	8	23	5	3	sw.	U. S. Forest Service.
No. 2	do	2,500	1	63.0	.....	96	19	37	14	48	1.16	.....	0.34	0	8	23	5	3	sw.	Do.
No. 3	do	.....	1	59.8	.....	95	20	32	15†	53	1.22	.....	0.34	0	8	23	5	3	se.	Do.
Pyle Creek	Boise	3,100	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. V. Smith.
Richfield	Lincoln	4,306	3	67.8	.....	96	9	31	14	50	0.89	.....	0.60	0	5	18	11	2	sw.	Idaho Irrigation Co.
Rogerson	Twin Falls	.....	....	65.0[d]	.....	91[d]	6	34[d]	14	47[d]	1.29	.....	0.38	0	7	....	.....	.....	.....	J. S. Bussell.
Roseberry	Boise	4,872	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rev. T. P. Graham.
Roseworth	Twin Falls	4,650	2	.....	.....	.....	.....	.....	.....	.....	1.18	.....	0.28	0	9	5	20	6	sw.	D. B. Hartwell.
Rupert	Minidoka	4,204	6	67.0	.....	94	9	35	14	49	2.45	.....	1.04	0	11	24	4	3	sw.	Will Parry.
St. Anthony	Fremont	4,968	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Heber C. Sharp.
St. Maries	Kootenai	2,263	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. S. Turnbull.
St. Michael's Priory	Idaho	3,811	....	62.8	.....	87	20	40	13	36	1.71	.....	1.01	0	8	14	13	4	nw.	Rev. Father Berthold.
Salmon	Lemhi	4,040	7	65.2	.....	95	19	32	14	50	1.36	.....	0.28	0	13	17	10	4	w.	E. K. Abbott.
Sandpoint	Bonner	2,086	2	63.8	.....	93	20†	37	14	44	0.95	.....	0.25	0	6	17	11	3	sw.	S. M. Moore.
Sheep Hill	Boise	5,000	3	.....	.....	.....	.....	.....	.....	.....	4.17	.....	2.87	0	9	.....	.....	.....	.....	Clifford M. Gardner.
Shoshone	Lincoln	3,968	5	69.6	.....	99	8	36	14	45	0.80	.....	0.47	0	4	14	17	0	w.	Zell Truman.
Silver City	Owyhee	6,280	5	.....	.....	.....	.....	.....	.....	.....	1.25	.....	0.57	0	4	12	16	3	.....	Russell Stoddard.
Soldier Creek	Blaine	5,755	2	57.2[d]	.....	84[d]	5†	29[e]	14	41[e]	3.56	.....	1.73	0	8	.....	.....	.....	nw.	J. E. Minear.
Spirit Lake §	Kootenai	2,560	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. C. Krause.
Springfield	Bingham	4,420	4	66.3	.....	95	9	29	14	54	1.39	.....	0.40	0	9	9	14	8	sw.	Mrs. W. A. Edwards.
Spring Hill	Ada	3,607	....	70.0	.....	96	6†	42	14	37	6.35	.....	2.81	0	5	.....	.....	.....	nw.	Ray G. Lyons.
Sugar §	Fremont	4,892	5	62.7	.....	89	6	33	14	43	2.74	.....	1.50	0	7	21	4	6	sw.	Utah-Idaho Sugar Co.
Sunnyside	Elmore	3,500	3	.....	.....	.....	.....	38[e]	11†	....	2.33	.....	0.60	0	6	.....	.....	.....	nw.	Col. M. W. Wood.
Tripod Mountain	Boise	4,300	3	.....	.....	.....	.....	.....	.....	.....	2.28	.....	1.10	0	5	22	4	5	.....	Mrs. Verna Paddock.
Twin Falls	Twin Falls	3,825	7	68.2	.....	98	6	31	14	51	1.50	.....	0.50	0	8	14	14	3	sw.	J. A. Waters.
Vernon	Fremont	5,050	14	60.6	− 3.2	87	18	27	14	46	5.60	+ 4.62	3.13	0	10	12	12	7	sw.	A. M. Slatery.
Wallace	Shoshone	2,728	5	62.2	.....	95	20	36	14	47	1.73	.....	0.53	0	8	.....	.....	.....	w.	U. S. Weather Bureau.
Weiser	Washington	2,114	1	73.6	.....	105	20	40	14	50	1.18	.....	0.80	0	5	9	12	10	se.	J. W. Lapish.
Wendell	Gooding	3,400	4	70.0	.....	97	6†	35	13	47	1.87	.....	0.82	0	5	20	9	2	w.	Chas. L. Dingler.
Weston	Franklin	4,460	14	66.0	− 1.7	92	17	38	31	45	1.27	+ 0.62	0.41	0	8	19	6	6	n.	Wm. T. Chatterton.
Washington.																				
Aberdeen	Chehalis	162	22	62.8	+ 2.8	97	31	44	17†	43	1.78	+ 0.82	0.52	0	10	17	6	8	nw.	H. A. Benham.
Anacortes	Skagit	60	19	60.1	.....	83	21	36	29	37	0.83	+ 0.18	0.27	0	7	17	12	2	.....	Douglas Allmond.
Anatone	Asotin	2,800	....	59.8	.....	89	20	30	14	48	0.43	.....	0.18	0	3	22	7	2	sw.	W. A. Hamilton.
Baker	Skagit	390	7	64.6	.....	91	19†	44	3†	38	1.80	.....	0.30	0	8	15	6	10	.....	R. M. White.
Bellingham	Whatcom	60	18	63.5	+ 2.0	85	22†	44	3	33	1.05	+ 0.32	0.35	0	6	22	7	2	.....	Sanford B. Mayhew.
Bellingham (near)	do	107	2	62.2	.....	82	19	41	3	33	0.78	.....	0.36	0	6	20	7	4	.....	U. S. Bu. Plant Industry.
Blaine	do	57	16	60.8	+ 0.1	81	31	40	3	33	1.84	+ 0.93	0.62	0	9	16	9	6	sw.	John W. Sheets.
Blewett	Chelan	2,200	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Burmeister.
Bremerton	Kitsap	40	15	.....	.....	.....	.....	.....	.....	.....	0.81	+ 0.20	0.50	0	5	.....	.....	.....	.....	U. S. Navy Yard.
Brewster	Okanogan	1,620	3	71.2	.....	101	20†	44	14	39	0.08	.....	0.08	0	1	18	12	1	nw.	Mrs. H. F. Bertram.
Buckley	Pierce	685	....	62.8	.....	91	22	41	2	41	0.80	.....	0.29	0	7	9	13	9	sw.	Geo. C. Sears.
Bumping Lake	Yakima	3,400	2	58.5	.....	89	20	35	7†	43	0.20	.....	0.10	0	2	20	7	4	.....	U. S. Reclamation Service.
Cedar River	King	535	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Landsburg.
Centralia	Lewis	212	20	63.6	− 0.4	95	22	38	2	45	0.69	+ 0.01	0.38	0	5	13	16	2	n.	I. S. Turner.
Clearbrook	Whatcom	140	10	61.6	+ 0.2	91	18†	40	3†	49	2.43	+ 1.07	0.64	0	13	11	12	8	w.	Geo. Gibbs.
Cle Elum	Kittitas	1,930	14	62.4	− 1.1	101	20	35	14	57	0.11	− 0.19	0.06	0	2	24	4	3	sw.	J. A. Balmer.
Colfax	Whitman	2,300	24	64.6	− 0.3	100	20	34	14†	56	0.25	− 0.42	0.10	0	3	21	4	6	w.	I. B. Doolittle.
Colville	Stevens	1,635	13	64.9	− 2.9	100	20	37	30	50	0.70	− 0.53	0.37	0	4	18	7	6	sw.	W. L. Sax.
Colville Forest Station	do	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Conconully	Okanogan	2,300	13	63.9	− 2.6	96	22	38	14	40	0.70	− 0.37	0.36	0	6	17	11	3	.....	Wm. Baines.
Coulee City	Grant	2,400	....	65.8	.....	96	21	39	14†	43	0.14	.....	0.14	0	1	....	.....	.....	.....	M. E. Jolly.
Cowiche	Yakima	1,874	2	69.2	.....	99	20	42	13	39	0.10	.....	0.10	0	1	18	13	0	nw.	U. S. Reclamation Service.
Darrington	Snohomish	567	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Charles Burns.
Davenport	Lincoln	2,450	4	64.4	.....	95	20	31	14	42	0.27	.....	0.20	0	4	27	3	1	.....	James L. Thayer.
Dayton	Columbia	1,700	27	68.8	− 0.7	97	20	43	14	41	0.11	− 0.52	0.10	0	2	23[a]	7[a]	0[a]	sw.	W. W. Hendron.
Deer Park	Spokane	2,050	2	63.0	.....	96	20	30	14	50	0.44	.....	0.12	0	6	28	3	0	sw.	Robt. Allison, jr.
Detroit	Mason	30	5	64.3	.....	97	22	43	8†	49	0.83	.....	0.34	0	5	16	11	4	se.	Walter O. Eckert.
Dixie (near)	Walla Walla	.....	4	.....	.....	.....	.....	.....	.....	.....	0.44	.....	0.18	0	4	14	13	4	sw.	T. Z. Andrews.
Douglas Lake	Skagit	440	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Michael Pecovitch.
Dryden	Chelan	960	3	.....	.....	.....	.....	.....	.....	.....	0.01	.....	0.01	0	1	30	0	1	nw.	Wenatchee Gas & Elec. Co.
Duckabush	Jefferson	380	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. G. Newman.
Ellensburg	Kittitas	1,571	25	68.4	+ 1.7	101	20†	36	16	53	0	− 0.29	0	0	0	27	2	2	nw.	R. Lee Barnes.
Eltopia	Franklin	598	....	76.1	.....	109	23	40	14	55	0	.....	0	0	0	.....	.....	.....	.....	Frank O. Young.
Forks	Clallam	480	....	.....	.....	.....	.....	40	2	....	3.10	.....	0.89	0	10	.....	.....	.....	sw.	R. H. Palmer.
Fort Simcoe	Yakima	1,427	18	72.0	−0.3	108	20	44	13	40	1.25	+ 1.15	1.25	0	1	21	5	5	w.	Richard Newmark.

TABLE 1.—*Climatological data for July, 1913. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Washington—Contd.																				
Gerome	Stevens	1,200	1	66.6	.....	100	24	37	14	48	0.19	.....	0.13	0	2	20	10	1	.....	W. W. King.
Goat Lake	Snohomish	2,900	4	.....	.....	.....	.....	.....	.....	.....	4.46	.....	0.85	0	13	.....	.....	.....	.....	C. M. Mackintosh.
Gold Basin	do	1,360	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Gold Creek	Yakima	2,600	4	.....	.....	.....	.....	.....	.....	.....	0.20	.....	0.20	0	1	17	11	3	w.	John W. Anderson.
Gold Hill	do	4,454	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Reclamation Service.
Goldendale	Klickitat	1,600	7	68.1	.....	103	20	40	12	47	0.18	+ 0.02	0.15	0	2	4[a]	26[a]	0[a]	w.	Klickitat County Abs. Co.
Granite Falls	Snohomish	397	10	.....	.....	.....	.....	.....	.....	.....	2.44	+ 1.08	0.54	0	11	11	10	10	nw.	C. H. Cleaver.
Guler	Klickitat	2,200	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Frank Kuehnel.
Hanford	Benton	385	.....	76.0	.....	110	23	42	14	59	0	.....	0	0	0	16	14	1	nw.	Frances Lee Bash.
Hatton	Adams	1,100	8	70.2	.....	104	23	35	14	51	0.01	.....	0.01	0	1	18	3	10	sw.	Dr. A. V. Marion.
Huntsville	Columbia	1,400	5	.....	.....	.....	.....	.....	.....	.....	0.28	.....	0.18	0	2	.....	.....	.....	.....	Mrs. S. J. Hill.
Irene Mountain	Okanogan	2,700	4	.....	.....	.....	.....	.....	.....	.....	0.73	.....	0.40	0	4	13	8	10	.....	Mrs. Theo. Wheeler.
Kennewick	Benton	368	18	75.0[a]	− 2.2	108[a]	20†	45[a]	13	53[a]	T.	− 0.12	T.	0	0	.....	.....	.....	.....	R. E. Reed.
Kent	King	53	.....	63.0	.....	93	22	39	7	46	0.46	.....	0.15	0	5	18	6	7	n.	A. O. Jeffries.
Kettle Falls	Stevens	1,265	4	67.0	.....	99	24	40	14	45	0.40	.....	0.21	0	5	16	14	1	.....	H. H. Cole.
Kiona	Benton	430	.....	73.2	.....	102	20	43	14	49	0.0	.....	0.0	0	0	26	4	1	sw.	Dr. F. S. Hedger.
Knowlton (near)	Okanogan	3,800	.....	68.4	.....	100	20	45	15†	40	.....	.....	.....	.....	.....	.....	.....	.....	nw.	W. P. Jay.
Kosmos	Lewis	775	7	64.8	.....	99	31	40	4†	52	0.65	.....	0.35	0	6	11	19	1	ne.	J. A. Ulsh.
La Center	Clarke	250	16	62.6	− 1.7	95	31	39	2	42	0.63	− 0.18	0.29	0	6	16	14	1	sw.	Joseph Brothers.
La Crosse	Whitman	1,400	4	67.5	.....	102	20	33	14	55	T.	.....	T.	0	0	20	9	2	w.	M. E. Schreck.
Lake Clealum	Kittitas	2,171	4	63.2	.....	98	20	39	16	49	0.68	.....	0.43	0	2	11	13	7	nw.	U. S. Reclamation Service.
Lake Kachess	do	2,235	5	63.2	.....	98	20	40	13†	44	0.38	.....	0.38	0	1	21	3	7	w.	Do.
Lake Keechelus	do	2,479	5	63.2[f]	.....	95[e]	20	39[f]	13†	43[f]	1.27	.....	0.54	0	8	17	10	4	w.	Do.
Lakeside	Chelan	1,116	22	72.0	− 0.7	102	24	45	14	49	0.03	− 0.29	0.03	0	1	14	17	0	w.	W. H. Van Meter.
Laurel	Klickitat	1,900	4	.....	.....	.....	.....	.....	.....	.....	0.06	.....	0.04	0	2	19	11	1	w.	Mrs. Minnie E. Strout.
Laurier	Ferry	1,644	3	65.6	.....	97	20†	37	13	46	1.17	.....	0.24	0	15	11	10	10	s.	Mrs. J. S. Myers.
Lone Tree	Chehalis	9	4	60.6	.....	80	31	51	13†	25	1.62	.....	0.42	0	9	12	17	2	nw.	U. S. Engineers Corps.
Longmires Springs	Pierce	2,800	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	National Park Ranger.
Lost Creek	Okanogan	3,125	4	.....	.....	.....	.....	.....	.....	.....	1.00	.....	0.50	0	3	18	11	2	.....	P. H. Leese.
Milton Ranch	Ferry	.....	.....	61.4	.....	96	20	32	13†	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	Knute Milton.
McConihe	Grant	1,072	2	72.7	.....	106	20	42	14	46	T.	.....	T.	0	0	26	3	2	w.	L. F. McConihe.
McCumbers Ranch	Yakima	2,182	3	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.10	0	1	18	13	0	.....	Mrs. Mary McCumber.
Moses Lake	Grant	1,070	2	.....	.....	.....	.....	.....	.....	.....	0.00	.....	0.00	0	0	24	4	3	sw.	H. M. Flemming.
Mottinger	Benton	307	13	75.2	− 0.9	104	20†	50	15	39	0.07	− 0.08	0.07	0	1	25	6	0	w.	G. H. Mottinger.
Mount Pleasant	Clallam	500	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. M. Dorr.
Moxee	Yakima	1,000	21	69.5[e]	− 1.8	104	20	37[e]	14	57[e]	T.	− 0.26	T.	0	0	21	10	0	.....	H. B. Scudder.
Newport	Pend d'Oreille	2,400	3	62.4[f]	.....	95[k]	20	34	14	51[k]	0.58	.....	0.22	0	8	19	10	2	sw.	Chas. M. Talmadge.
Nighthawk	Okanogan	3,050	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Steve Nagy.
North Head	Pacific	211	11	58.5	+ 0.8	80	31	51	31	29	1.03	+ 0.49	0.43	0	8	10	14	7	nw.	U. S. Weather Bureau.
North Sundale	Klickitat	.....	4	73.2	.....	104	20	46	14	41	0	.....	0	0	0	.....	.....	.....	.....	Ruth J. Shepard.
Northport	Stevens	1,350	14	66.8	+ 0.6	98	19	43	11†	47	1.67	+ 0.45	0.43	0	12	17	13	1	.....	W. F. Case.
North Yakima	Yakima	1,070	4	70.4	.....	98	20†	44	14	39	T.	.....	T.	0	0	21	9	1	nw.	Albert Bender.
Odessa	Lincoln	1,540	10	68.8	.....	102	20	36	14	47	0.12	.....	0.12	0	1	13	17	1	sw.	H. W. Rieke.
Olga	San Juan	50	23	59.6	− 0.2	76	31	47	11†	23	0.59	− 0.17	0.16	0	6	15	14	2	sw.	Cecil S. Willis.
Olympia	Thurston	45	35	63.2	+ 0.2	95	19†	41	2†	45	0.62	− 0.08	0.23	0	5	19	9	3	nw.	M. O'Connor.
Omak	Okanogan	850	4	70.2	.....	105	20	39	14	49	0.06	.....	0.06	0	1	21	8	2	n.	Saint John Umbrite.
Oroville	do	922	3	70.2	.....	103	24	40	14	43	0.72	.....	0.30	0	4	13	14	4	n.	M. C. Jackman.
Peola	Garfield	5,000	4	.....	.....	.....	.....	.....	.....	.....	0.34	.....	0.15	0	6	20	7	4	sw.	Samuel Gruell, sr.
Pomeroy	do	1,500	21	67.6	− 4.2	98	20	40	15	43	0.05	− 0.38	0.03	0	2	16	14	1	w.	Peter McClung.
Port Crescent	Clallam	259	18	56.2	+ 0.1	86	19	38	29	39	0.85	+ 0.24	0.24	0	6	11	17	3	w.	U. S. Weather Bureau.
Port Townsend	Jefferson	80	23	59.4	− 1.5	86	21	42	7	31	1.19	+ 0.46	0.37	0	13	14	7	10	nw.	Frank Plummer.
Prosser	Benton	661	.....	72.6	.....	106	20	41	13†	51	T.	.....	T.	0	0	27	3	1	w.	E. L. Capps.
Pullman	Whitman	2,550	21	70.1[b]	+ 2.7	100[a]	20	43[e]	14	39[e]	0.07	− 0.50	0.04	0	3	19	10	2	sw.	Agricultural College.
Queets River	Jefferson	16	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Bullard.
Quinialult	Chehalis	300	7	63.8	.....	100	31	43	7	50	2.84	.....	0.70	0	10	15	13	3	w.	A. V. Higley.
Reardan	Lincoln	.....	.....	66.0	− 0.5	96	21	34	14	44	0.56	− 0.17	0.52	0	2	9	8	14	sw.	.....
Republic	Ferry	2,628	13	61.6	− 2.3	96	20	33	14	48	1.25	− 0.03	0.60	0	11	16	3	12	sw.	Geo. B. Stocking.
Rex Creek	Chelan	1,135	6	66.6[f]	.....	94[f]	23	45[f]	14	39[f]	0.00	.....	0.00	0	0	9[f]	9[f]	7[f]	nw.	James W. Nicol.
Ritzville	Adams	1,825	14	.....	.....	.....	.....	.....	.....	.....	0.03	− 0.27	0.03	0	1	.....	.....	.....	.....	Agent N. P. Ry.
Robertsville	Klickitat	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. R. Couger.
Rock Lake	Whitman	1,910	7	.....	.....	.....	.....	.....	.....	.....	0.27	.....	0.19	0	3	.....	.....	.....	.....	H. C. Melcher.
Rosalia	do	2,425	21	64.9	− 0.5	94	20†	39	14†	47	0.36	− 0.52	0.27	0	4	17	13	1	sw.	Hans Mumm.
Russells Ranch	Yakima	2,870	4	.....	.....	.....	.....	.....	.....	.....	0.47	.....	0.19	0	6	22	6	3	w.	Mrs. Adella Russell.
Seattle	King	208	22	63.4	− 0.1	87	22	48	13	28	0.73	+ 0.04	0.35	0	6	11	10	10	n.	U. S. Weather Bureau.
Sedro Woolley	Skagit	38	16	61.8	− 0.6	85	22	40	17	37	1.57	+ 0.25	0.37	0	11	16	11	4	.....	Mrs. H. L. Devin.
Sixprong	Klickitat	1,240	6	73.8	.....	105	20	45	14	42	0.02	.....	0.02	0	1	27	1	3	sw.	C. E. Comstock.
Skagit Power Dam	Whatcom	510	3	65.2	.....	98	19†	43	16	45	2.30	.....	0.40	0	11	21	2	8	.....	Skagit Power Co.
Snohomish	Snohomish	55	19	63.1	+ 0.6	91	21	41	17	41	2.75	+ 1.59	0.70	0	8	22	5	4	nw.	James Bylling.
Snoqualmie Falls	King	667	14	64.8	− 0.5	96	22	43	16	44	1.72	+ 0.65	1.02	0	11	20	0	11	.....	O. N. Wiswell.
Snoqualmie Pass	do	3,000	4	.....	.....	.....	.....	.....	.....	.....	0.49	.....	0.14	0	7	15	5	11	.....	R. E. Chadwick.
Snyders Ranch	Okanogan	2,200	4	61.0	.....	99	21†	31	14	58	T.	.....	T.	0	0	14	13	4	w.	Geo. M. Snyder.
South Bend	Pacific	140	18	.....	.....	.....	.....	.....	.....	.....	1.68	+ 0.68	0.55	0	9	12	12	7	w.	Mrs. W. E. Buckingham.
Spokane	Spokane	1,943	32	67.8	− 1.0	95	20	43	14	36	0.37	− 0.30	0.22	0	8	15	10	6	ne.	U. S. Weather Bureau.
State University	King	170	4	63.0	.....	86	21†	51	3†	28	0.50	.....	0.19	0	9	13	7	11	sw.	State University.
Stokes Ranch	Okanogan	2,670	4	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.05	0	3	12	19	0	sw.	Charles W. Gunn.
Sullivan Lake	Pend d'Oreille	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Sumner	Pierce	77	5	63.0[a]	.....	92	22	38[a]	17	41[a]	0.50	.....	0.26	0	4	15	8	8	n.	H. E. Thompson.
Sunnyside	Yakima	740	18	70.2	− 1.2	103	20	39	13	48	T.	− 0.23	T.	0	0	12	19	0	nw.	U. S. Reclamation Service.
Tacoma	Pierce	213	27	63.1	− 0.3	89	22	47	13	30	0.55	− 0.11	0.22	0	5	10	15	6	n.	U. S. Weather Bureau.
Tatoosh Island	Clallam	86	28	57.0	+ 1.9	73	20	50	21	21	3.11	+ 1.33	1.27	0	12	10	14	7	sw.	Do.
Tieton Canyon	Yakima	2,313	4	67.4	.....	98	20	42	13	44	T.	.....	T.	0	0	22	8	1	w.	U. S. Reclamation Service.
Touchet	Walla Walla	556	6	72.0	.....	104	20†	44	30	54	0.03	.....	0.03	0	1	23	6	2	sw.	D. W. Dorrance.
Touchet Ridge	Columbia	2,500	4	.....	.....	.....	.....	.....	.....	.....	0.22	.....	0.14	0	4	23	7	1	sw.	Mrs. Maude Bernard.
Trinidad	Douglas	900	9	75.2	.....	105	20	49	14	37	0.06	.....	0.06	0	1	29	2	0	nw.	J. C. Wheeler.
Vancouver	Clarke	100	38	66.8	− 0.2	96	31	46	8	41	0.27	− 0.64	0.08	0	6	10	15	6	nw.	A. A. Quarnberg.
Vashon Island	King	40	24	61.1	− 1.5	83	22	45	2	28	0.47	− 0.04	0.22	0	8	21	3	7	n.	Miss Gertrude McClintock.
Wahluke	Grant	410	9	75.1	.....	106	20	49	14	45	T.	.....	T.	0	0	21	6	4	.....	F. C. Koppen.
Wallace	Okanogan	4,000	4	.....	.....	.....	.....	.....	.....	.....	0.58	.....	0.23	0	7	15	15	1	s.	G. A. Wallace.
Walla Walla	Walla Walla	1,000	29	73.9	− 0.2	105	20	51	13	37	0.04	− 0.35	0.04	0	2	22	6	3	sw.	U. S. Weather Bureau.
Washougal	Clarke	650	13	65.3	+ 0.4	93	31	42	25	47	0.68	− 0.24	0.20	0	5	20	8	3	w.	F. M. Grout.
Waterville	Douglas	2,624	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. R. Hopewell.
Wenatchee	Chelan	639	.....	73.4[a]	.....	106[a]	20	46[a]	14	45[a]	0.00	.....	0.00	0	0	22	6	3	n.	A. A. Piper.
Wenatchee (near)	do	1,169	14	68.2	− 1.5	97	20	45	13†	33	T.	− 0.42	T.	0	0	20	7	4	w.	Geo. A. Pitcher.

TABLE 1.—*Climatological data for July, 1913. District No. 12*—Continued.

Stations.	Counties	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Washington—Contd.																				
White Salmon	Klickitat	325	2	70.4	.....	104	18	47	7	47	0.21	.....	0.13	0	3	13	14	4	w.	C. W. J. Reckers.
Wilbur	Lincoln	2,203	14	64.2[c]	− 0.7	97[c]	20†	27[c]	14	55[c]	0.59	+ 0.04	0.59	0	1	20[c]	5[c]	3[c]	sw.	R. J. Reeves.
Wind River	Skamania	1,300	2	63.8[a]	.....	98[a]	20	38[a]	2	46[a]	0.82	.....	0.37	0	6	17	8	6	se.	U. S. Forest Service.
Winthrop	Okanogan	1,765	2	66.7[a]	.....	101[a]	20	37[a]	14	53[a]	0.20	.....	0.09	0	3	23[a]	7[a]	0[a]	.....	Methow Trading Co.
Yacolt	Clarke	850	.....	.....	.....	.....	.....	.....	.....	.....	0.85	.....	0.34	0	6	17	4	10	s.	C. R. Miller.
Yale	Cowlitz	375	6	65.2	.....	100	31	39	2	43	1.12	.....	0.39	0	6	14	10	7	sw.	J. A. Williams.
Zillah	Yakima	800	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Clarence G. Ware.
Oregon.																				
Agency Plains	Crook	2,363	....	59.8	.....	88	20†	35	2	39	0.26	.....	0.22	0	2	22	5	4	nw.	W. S. Williams.
Albany	Linn	212	31	66.2	− 0.1	100	31	45	16	42	0.55	+ 0.06	0.36	0	5	.....	.....	.....	n.	F. M. French.
Alpine	Benton	350	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. D. McPherson, jr.
Ashland	Jackson	1,963	29	65.7	− 4.1	95	18	41	15	42	2.86	+ 2.40	2.00	0	4	19	4	8	nw.	Louis Dodge.
Astoria	Clatsop	16	52	61.8	+ 0.2	93	31	49	11†	35	2.37	+ 1.32	1.01	0	10	16	5	10	nw.	Irving Club.
Austin	Grant	4,250	2	58.6	.....	90	8	29	2	48	2.01	.....	0.95	0	7	14	10	7	w.	U. S. Forest Service.
Baker	Baker	3,466	23	63.5	− 1.5	91	8	36	14	41	0.47	+ 0.04	0.21	0	5	18	10	3	s.	U. S. Weather Bureau.
Bend	Crook	3,629	8	64.4	.....	94	8†	31	12	51	0.55	.....	0.24	0	4	21	8	2	s.	Bend Bulletin.
Black Butte	Lane	1,200	12	61.2	− 3.2	88	18	44	3†	41	0.90	+ 0.07	0.60	0	5	23	2	6	nw.	William Harris.
Blalock	Gilliam	237	15	77.4	− 0.6	109	20	49	14	42	T.	− 0.13	T.	0	0	24	7	0	w.	George W. Long.
Brogan	Malheur	2,600	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Addington.
Burns	Harney	4,157	22	68.6	+ 2.8	95	20	34	12	56	1.99	+ 1.78	1.25	0	5	21	4	6	w.	J. C. Welcome, jr.
Camp Creek	Crook	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. W. Nelson.
Cascade Locks	Hood River	100	23	66.3	− 1.6	96	31	47	8†	39	0.83	+ 0.04	0.25	0	7	18	4	9	w.	Val W. Tomkins.
Cazadero	Clackamas	503	4	66.0	.....	99	18†	40	28	50	0.74	.....	0.14	0	8	14	5	12	nw.	Alf Drill.
Centralpoint	Jackson	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. C. Fiero.
Clear Lake	Linn	3,030	....	60.4	.....	91	21	34	27	46	1.13	.....	0.50	0	7	12	12	7	se.	Geo. S. Edmonstone.
Cliff	Lake	4,300	6	59.8	.....	91	18	25	13	52	1.17	.....	0.72	0	4	17	13	1	nw.	John C. Green.
Comb's Flat	Crook	4,027	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. R. Breese.
Condon	Gilliam	2,884	6	65.0	.....	95	20	39	11†	45	0.0	.....	0.0	0	0	28	2	1	ne.	C. F. Kennedy.
Corvallis	Benton	266	25	64.9	− 0.4	97	18	42	4†	52	0.93	+ 0.65	0.50	0	4	17	9	5	n.	Oreg. Agr. College.
Crescent	Klamath	4,400	1	57.6	.....	91	18	25	2†	57	0.93	.....	0.43	0	6	20	8	3	sw.	C. W. Long.
Culver	Crook	.....	.....	67.9	.....	98	23	34	2	53	0.50	.....	0.27	0	3	23	6	2	sw.	O. C. Young.
Dayville	Grant	2,200	19	66.1	− 2.8	94	23	39	2†	49	0.43	+ 0.05	0.20	0	5	17	14	0	nw.	J. Campbell-Martin.
Deadwood	Lane	350	3	64.2	.....	94	18†	40	2	45	1.20	.....	0.93	0	5	17	11	3	nw.	Supt. salmon hatchery.
Doraville	Columbia	600	11	62.2	− 0.4	92	31	42	2	35	0.98	+ 0.08	0.44	0	9	14	6	11	nw.	Jos. Hackenberg.
Drain	Douglas	300	11	65.6	− 0.9	96	31	43	2†	48	0.70	+ 0.39	0.70	0	1	8	18	5	nw.	Ira Wimberly.
Echo	Umatilla	625	9	73.4	.....	107	20	45	14	50	0.12	.....	0.09	0	2	25	4	2	w.	R. B. Stanfield.
Ella	Morrow	830	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Carl F. Troedson.
Eugene	Lane	449	23	65.2	− 0.4	92	21	44	3	45	0.63	+ 0.09	0.57	0	2	17	10	4	nnw.	Paul G. Bond.
Follyfarm	Malheur	.....	.....	65.4	.....	96	8	25	14	55	3.02	.....	1.82	0	5	20	8	3	wnw.	W. R. Gardner.
Forest Grove	Washington	220	24	65.8	+ 0.4	100	31	43	2	42	0.38	− 0.09	0.15	0	6	10	9	11	nnw.	Pacific University.
Gardiner	Douglas	72	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	William S. Angus.
Glassbuttes	Crook	4,200	....	61.7	.....	92	31	30	12	50	2.03	.....	0.77	0	5	21	3	7	s.	C. J. Stauffer.
Glendale	Douglas	149	9	67.6	.....	104	21	40	1	53	0.31	.....	0.23	0	2	17	2	12	nw.	Carl Olson.
Glenora	Tillamook	575	22	61.8	− 1.2	96	31	39	3	51	1.17	+ 0.10	0.42	0	9	14	3	14	nw.	Mrs. J. A. Reeher.
Gold Beach	Curry	40	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John W. Riley.
Grants Pass	Josephine	956	25	69.6	0	101	18	38	2	52	1.57	+ 1.46	0.63	0	4	14	12	5	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	12	63.4	.....	98	20	32	2†	54	0	.....	0	0	0	21	5	5	nw.	Agt. O.-W. R. & N. Co.
Gurdane	Umatilla	3,500	4	62.2	.....	98	20	34	14	48	0.02	.....	0.02	0	2	22	8	1	w.	Miss Belle Ely.
Headworks	Clackamas	719	11	63.9	− 0.8	95	22†	44	8	48	1.45	+ 0.11	0.30	0	9	19	10	2	se.	Portland waterworks.
Heppner	Morrow	1,950	23	66.8	− 2.0	97	20	40	13	40	0.12	− 0.45	0.09	0	2	16	15	0	w.	Frank Gilliam.
Hermiston	Umatilla	451	6	72.8	.....	105	20	44	14	53	0.05	.....	0.05	0	1	24	7	0	.....	C. W. Kellogg.
Hillcrest Orchard	Jackson	1,595	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. H. Parsons.
Hollywood Orchard	.....do	1,400	....	68.5	.....	98	18	40	15	46	2.82	.....	1.33	0	4	21	8	2	.....	A. C. Allen.
Hood River	Hood River	300	23	66.0	− 1.3	103	20	44	8	49	0.15	− 0.04	0.15	0	1	20	9	2	w.	Edward W. Birge.
No. 2	.....do	485	1	69.8	.....	102	19	46	14	49	0.11	.....	0.11	0	1	14	16	1	w.	C. C. Starring.
No. 3	.....do	620	1	65.8	.....	99	20	39	14	53	0.15	.....	0.15	0	1	18	13	0	w.	U. A. Newman.
No. 4	.....do	850	1	67.4	.....	100	20	40	14	46	0.25	.....	0.25	0	1	29	2	0	w.	P. L. Smith.
No. 5	.....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. G. Jarvis.
Huntington	Baker	2,163	12	74.8	− 3.7	100	6	50	3†	39	0.10	− 0.16	0.04	0	4	14	17	0	.....	Agt. O.-W. R. & N. Co.
Jacksonville	Jackson	1,640	25	68.0	− 1.9	97	18	42	2	42	4.14	+ 3.95	1.59	0	5	19	8	4	.....	E. Britt.
Joseph	Wallowa	4,400	24	61.6	− 1.0	90	23	32	14	43	0.64	− 0.27	0.36	0	3	19	8	4	s.	F. F. McCully.
Klamath Falls	Klamath	4,100	24	64.2	− 3.9	90	8†	36	2†	40	1.37	+ 1.17	0.99	0	4	17	10	4	nw.	Augusta J. Hayden.
La Grande	Union	2,784	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. A. Worstell.
Laidlaw	Crook	3,171	....	65.2	.....	94	8	34	13	53	2.01	.....	1.63	0	5	24	3	4	nw.	J. W. Brown.
Lake View	Lake	4,825	30	61.6	− 5.0	86	8†	32	13	43	2.69	+ 2.43	1.14	0	5	17	7	7	s.	C. C. Gott.
La Pine	Crook	4,230	....	58.8	.....	90	8†	27	2	57	1.50	.....	0.93	0	4	27	2	2	s.-w.	Albert Larson.
McKenzie Bridge	Lane	1,400	12	65.2	+ 0.4	101	18	35	14	58	1.43	+ 0.27	0.68	0	10	17	4	10	sw.	George Frissell.
McMinnville	Yamhill	182	26	65.2	+ 0.5	98	19†	42	2†	48	0.29	− 0.09	0.14	0	4	15	14	2	sw.	M. E. Pettit.
Marshfield	Coos	34	12	60.8	+ 1.4	85	18	42	2	39	1.22	.....	1.01	0	5	16	6	9	nw.	U. S. Weather Bureau.
Meadow Brook Ranch	Hood River	850	1	66.0	.....	98	20	42	14	42	0.20	.....	0.15	0	4	26	5	0	sw.	John W. Palmer.
Medford	Jackson	1,425	3	68.7	.....	100	18	41	2	48	2.74	.....	1.45	0	5	21	7	3	nw.	U. S. Weather Bureau.
Merrill	Klamath	4,070	8	64.2[f]	.....	96[f]	20	33	13	42	2.02	.....	1.62	0	6	22	0	9	.....	U. S. Reclamation Service.
Metolius	Crook	2,525	3	67.0	.....	98	22†	38	3†	50	0.15	.....	0.15	0	1	28	3	0	sw.	John A. Hoffman.
Miramonte Farm	Clackamas	195	25	65.2	0	94	18†	42	2	40	0.63	+ 0.09	0.21	0	5	17	10	4	n.	G. Muecke.
Mount Angel	Marion	485	27	66.6	− 0.6	94	18	48	17	34	0.39	− 0.23	0.36	0	2	14	10	7	sw.	Dr. Urban Fisher.
Mount Hood	Hood River	1,450	2	62.3	.....	97	20	35	7	40	0.31	.....	0.26	0	2	22	9	0	w.	Isaac Beal.
Musick	Douglas	5,000	4	57.2	.....	88	18	35	14	45	1.88	.....	1.10	0	7	16	6	9	sw.	Alex Lundberg.
Newport	Lincoln	69	26	57.9	+ 0.2	75	18	46	2†	27	1.11	+ 0.25	0.49	0	6	8	17	6	nw.	William Mathews.
Odell	Hood River	1,000	1	66.0	.....	100	20	43	14	40	0.20	.....	0.20	0	1	.....	.....	.....	.....	W. H. Chipping.
Ortley	Wasco	1,600	2	66.0	.....	99	20	44	2†	37	0.09	.....	0.09	0	1	20	11	0	w.	L. D. Firebaugh.
Paisley	Lake	4,209	10	63.6	.....	88	8	34	13	40	2.34	.....	1.10	0	6	21	5	5	n.	C. M. Sain.
Parkdale	Hood River	1,650	3	64.4	.....	95	20	38	2†	42	0.39	.....	0.25	0	2	24	6	1	nw.	S. G. Babson.
Pendleton	Umatilla	1,070	24	72.0	+ 0.6	107	20	41	14	54	0.14	− 0.28	0.14	0	1	24	7	0	w.	E. F. Averill.
Peninsula	Crook	2,640	....	67.4	.....	97	20	40	15	47	0.58	.....	0.38	0	2	23	8	0	w.	M. M. Davenport.
Pilot Rock	Umatilla	1,817	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John P. McManus.
Pompeii	Clackamas	3,879	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. Coalman.
Portland	Multnomah	57	43	67.8	+ 1.5	98	31	51	11	35	0.24	− 0.34	0.17	0	2	11	13	7	nw.	U. S. Weather Bureau.
Port Orford	Curry	80	8	59.4	.....	78	30	46	8†	24	1.01	.....	0.42	0	6	20	3	8	n.	John D. Loucks.
Powell Butte	Crook	3,240	....	63.7	.....	94	20†	31	13	51	0.67	.....	0.50	0	3	20	7	4	w.	Earl Saunders.
Prairie City	Grant	3,425	2	65.1	.....	96	8	33	14	50	1.55	.....	0.70	0	8	18	10	3	nw.	A. M. F. Kirchheiner.
Prineville	Crook	2,864	17	64.4	− 0.6	98	31	33	2†	57	0.37	+ 0.03	0.15	0	2	24	1	6	w.	Mrs. T. M. Baldwin.
Prospect	Jackson	2,800	7	64.4	.....	95	18†	35	13†	47	3.04	.....	0.95	0	5	13	12	6	s.	Charles A. Lower.
Ramsey	Wasco	1,350	12	63.6	.....	95	20	38	2	42	0.13	.....	0.13	0	1	28	1	2	e.	Mrs. Iva B. Collins.
Range	Grant	3,500	5	60.8[a]	.....	93[a]	20	28[a]	14	51	0.42	.....	0.20	0	3	26[a]	2[a]	2[a]	s.	Mrs. Emma Arbuckle.

TABLE 1.—*Climatological data for July, 1913. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Sky.			Prevailing wind direction.	Observers
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oregon—Continued.																				
Redmond	Crook	2,990	2	.....	.....	93	20	.....	.....	.....	0.36	.....	0.18	0	3	24	7	0	nw.	T. G. Stevens.
Richland	Baker	2,350	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. G. Morgan.
Riddle	Douglas	715	....	67.0	.....	100	31	43	13†	49	0.87	.....	0.54	0	5	17	6	8	n.	P. A. Wilson.
Rio Hermoso	Crook	2,110	2	63.0[a]	.....	94[a]	31	35[a]	2	49[a]	0.39	.....	0.32	0	2	22[a]	7[a]	1[a]	nw.	C. T. Hubbard.
Riverside	Malheur	3,200	14	71.8	+ 2.3	103	20	35	14	59	4.60	+ 4.31	1.85	0	6	14	7	10	w.	Mrs. Leah Fairman.
Robbville	Crook	4,000	....	59.4	.....	90	8	27	2	54	0.34	.....	0.23	0	2	30	0	1	nw.	Loren B. Robb.
Roseburg	Douglas	510	35	67.5	+ 1.4	99	31	47	16	43	0.61	+ 0.29	0.52	0	5	10	18	3	n.	U. S. Weather Bureau.
Salem	Marion	120	23	66.0	− 0.4	95	18	42	15	40	0.29	− 0.19	0.23	0	2	22	0	9	nw.	M. P. Baldwin.
Seneca	Grant	4,800	2	60.4[i]	.....	87[i]	23	29[i]	2	46[i]	1.87[i]	.....	0.85[i]	0	6[i]	.....	.....	.....	.....	E. J. Southworth.
Silver Lake	Lake	4,700	16	61.2	− 3.4	94	20	29	17	45	1.84	+ 1.34	1.10	0	4	18	12	1	sw.	G. W. Marvin.
Siskiyou	Jackson	4,115	5	60.0	.....	88	31	35	2	41	3.23	.....	2.22	0	4	9	15	7	n.-ne.	U. S. Weather Bureau.
Sparta	Baker	4,150	22	67.2	− 0.3	92	8†	33	15	45	1.15	+ 0.70	0.70	0	3	24	4	3	n.	J. A. Wright.
Stafford	Clackamas	400	17	65.0	− 1.3	95	19†	45	14†	40	0.52	− 0.33	0.18	0	9	.....	.....	.....	sw.	John P. Gage.
Tablerock	Jackson	1,215	....	67.1	.....	101	18	37	15	56	2.03	.....	0.53	0	4	18	11	2	nw.	Mrs. J. C. Pendleton.
Talent	....do	1,800	....	68.1	.....	98	18	42	2	44	2.89	.....	1.60	0	5	20	3	8	nw.	T. F. Smith.
The Dalles	Wasco	112	39	73.6	+ 2.3	102	19	50	2	43	0.09	− 0.07	0.09	0	1	18	3	10	w.	Judd S. Fish.
Tillamook	Tillamook	.....	....	60.6[c]	.....	98[c]	18	33[b]	11	54	1.17	.....	0.35	0	12	13	6	12	nw.	Will Spalding.
Toledo	Lincoln	75	23	58.8	− 2.3	96	18	35	30	48	0.95	+ 0.39	0.50	0	4	22	7	2	.....	C. B. Crosno.
Umatilla	Umatilla	340	25	74.8	− 0.6	105	23†	47	14	48	0.14	− 0.04	0.14	0	1	19	3	9	sw.	Mrs. H. T. Duncan.
Union	Union	2,787	2	63.0	.....	91	6	32	14	45	0.96	.....	0.43	0	7	18	9	4	nw.	Robert Withycombe
Vale	Malheur	2,242	21	72.0[d]	+ 1.6	99[d]	6	40[d]	17	52[d]	1.97	+ 1.69	0.87	0	5	21[d]	5[d]	1[d]	ne.	H. P. Osborne.
Van	Harney	3,506	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Howe.
Vida	Lane	1,100	2	64.4	.....	96	31	42	2†	43	1.40	.....	1.15	0	3	10	14	7	w.	W. H. Pendell.
Waldo	Josephine	1,900	1	65.6[f]	.....	97[f]	18†	40[f]	2	44[f]	2.24	.....	0.92	0	4	15	11	5	n.	M. M. Lewis.
Wallace Orchard	Polk	170	4	64.8	.....	95	18	45	2†	48	0.29	.....	0.20	0	2	2	26	3	.....	Charles A. Park.
Wallowa	Wallowa	2,935	10	59.4[a]	− 5.3	83[a]	7†	30[a]	14	40	0.58	− 0.20	0.29	0	5	11[a]	12[a]	7[a]	nw.	L. J. Coverstone.
Wamic	Wasco	1,500	12	66.2	.....	98	19	37	15	50	0.10	.....	0.10	0	1	9	17	5	w.	A. J. Swift.
Warmsprings	Crook	1,500	11	69.6	− 0.4	100	20†	38	1	45	0.10	− 0.42	0.07	0	3	17	10	4	w.	George W. Robbins.
Wasco	Sherman	1,263	....	69.2	.....	101	20	43	2†	47	0.14	.....	0.14	0	1	26	4	1	w.	J. R. Howell.
Weston	Umatilla	1,800	21	71.2	+ 2.3	102	20	42	13	49	0.11	− 0.56	0.11	0	1	20	9	2	sw.	M. A. Baker.
Whitaker	Crook	4,250	....	58.4	.....	90	8	23	13	54	1.23	.....	0.56	0	6	18	12	1	nw.	Frank Percivall.
Williams	Josephine	1,368	21	66.3	0	96	18†	37	2	48	2.53	+ 2.35	1.12	0	4	16[a]	7[a]	7[a]	n.	Francis J. Le Roy.
Yonna	Klamath	4,146	6	61.1	.....	98	19	30	3	63	1.66	.....	0.89	0	4	15	6	10	w.	Ward Rueck.

[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
§ Data are from standard instruments not supplied by the Weather Bureau.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1913. District No. 12, Columbia Valley.*

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana.																																	
Anaconda	Missoula	T.	T.	.12			.15			T.				T.								.06				.20	.47		T.	.25			1.25
Butte	do	.35	T.	.20			T.			T.												T.	.67			.33			.14				1.69
Columbia Falls	Flathead	.24			.28						.05	.10			.03										.02		.10		.37				1.19
Como	Bitter Root	.42		.04																		.05				.41			.01	.14			1.07
Dayton	Flathead	.15			.20							.15													.10								0.60
Deer Lodge	Missoula	.10	.12	.31			.17																							.41			1.11
East Anaconda ‖	do	*	.26	.09			.07			.04												.04				*	1.03	T.	*	.19			1.72
Fortine	Kootenai	.25	.01		.05	.15					.04		T.	.17		.05						T.		.04			T.	.05		.18			0.99
Hamilton	Bitter Root	.12	.06	.07	T.	T.				T.	T.			T.							T.	.05		.07		.12			.01	T.	.09		0.59
Hat Creek	Missoula	.12	.27	.50	.01		.33			.02	.01			T.							T.	T.	T.		T.	.06	.33		.09	.65			2.39
Haugan	do	.04		.05	.04			.01			.27			.13	.02							.06	.03					T.		T.	T.		0.65
Heron	Columbia	.02	T.	.02	.10						.38	.07	.04	.04	.03	T.						.21								.05			0.96
Kalispell	Flathead	.14		.03	.01						.10					T.							T.		T.			T.		.10			0.38
Libby	Kootenai	.01			.01	.08						.31		.03	.02													.12		.06			0.64
Missoula	Missoula	.34	.04	.01	.15	.08	.10				.10	.02		T.		T.						.02		T.		T.	.04		.01	.08	.04		1.03
Ovando	do	.15	.25	T.	.26	.16	T.					.23		T.	.04							T.		.27	T.					T.	.03		1.39
Philipsburg	do	.20	.20	.21	T.															T.		T.				.02	.45		.15	.04			1.27
Plains	Columbia	.26		.18	.05	.04	T.				.58			.06		.01						.05	.05							.18			1.46
Pleasant Valley	Kootenai	T.		.05	.07						.15	.23		.04								.01						.01		.13			0.69
Polson	Flathead	.36		.30							.48																.17			.14			1.45
St. Ignatius	do	.30		.07	.07						.15	.13		.02													.50	.02		.10	T.		1.36
Saltese	Missoula	.09		.01							.77			.35								.14	.12							.08			1.56
Stevensville	Bitter Root	.06	.20	.07		.03					T.			T.							T.	.09								T.			0.45
Thompson Falls	Columbia	.04		.21	.03						.73			.31								1.05	.17	.19				.17		.04			2.94
Trout Creek	do	.40		.10							.55																						1.05
Victor	Bitter Root	.12	T.	.10							T.										T.	.07			T.			T.		.06			0.35
Wyoming.																																	
Afton	Snake										.09												.15		.26	.35	.08		.21	.10	.11		1.35
Alta	do	.15	.12	.25	.01				.01	.01	.18											.20	.60		1.22	.20	.32		.01	.04	.02		3.34
Bechler River	do	.30	.20	.10	.40																		.10	.40	.70	.50	.30		.20	.60			3.80
Bedford	do		.12		.29																		.62	.15	.42	.10			T.	.06	.08		1.84
Moran	do		.19	.10	.05																		.50		1.00	.09	.10		.03	.23	.16		2.45
Snake River	do	.13	.12	.22	.15		T.			.09	T.											.21	.12	.55	.44	.44	2.56	.40	.40	.04	.06	.23	.30		6.46
Nevada.																																	
San Jacinto	Snake																			.42		.06	.14		.16	.05	.35	.14		.21			1.53
Utah.																																	
Standrod	Raft			.12					.28		.10													.25	.29	.15	.39	.05	.12	.05	.04		1.84
Idaho.																																	
Albion	Snake		T.	.28						T.												T.	.32	.12	.50	.35	.12	.15	T.			1.84
Almo	do			.25	.40																.60	.40	.20	.10	.60	.08	.10	.60		.20	.10	T.	3.63
American Falls	do	.06		.12	.11					.98										.74						.10				12	.14		2.37
Arrowrock	Boise																				.34			.07	1.40	.27	1.10			13			3.31
Blackfoot ‖	Blackfoot			.09				.17	T.	T.												T.	.17	.71	.30	T.	.01	.69	T.	.06			2.20
Blackfoot Dam	do	.35	.20				.05			.07	.20									.12					.15	.33	.50	.05		.25	.25			2.52
Bogus Creek	Payette																																
Boise	Boise	.06	T.	.07																T.	.01				.24	.69	.50	.44		T.			2.01
Boise King	do			.05																.33		.03			.80	1.00	.77	.61		.01	.55			4.15
Bonners Ferry	Kootenai				.17	.28					.20												.21							27			1.13
Boulder Mine	Boise		.17	.16	.07															.84	.41	.05		.37	1.49	.41	.14		.09	T.			4.20
Buhl	Snake			.15						.05												T.	T.	.04	1.35	.70							2.29
Caldwell	Boise	.06		.20	.03																	.08	T.		2.50	.47	.21			T.			3.55
Caldwell Exp. Sta	do	.07		.23																					1.16	.20	.16						1.82
Cambridge	Weiser			.45																					.12	.28	.25						1.10
Cedar Creek Dam	Snake		T.	.32				.31	T.	.24										.14		T.	.27	.07	.26	.21		.02		.49			2.33
Chesterfield	Port Neuf			.10	.11					T.	.10									.06	.04		.28	.03	T.	.91	.15	.18	.15	.15	T.		2.26
Clarks Fork	Pend d'Oreil'e	.08		.03	.19						.30	.05		.04									.04							12			0.85
Clyde	L. River Reg																																
Coeur d'Alene	Spokane	.20		.05							25											.53	.02										1.05
Council	Weiser	.07		.44	.06																	.27			.16	.15	.21						1.36
Culdesac	Clearwater			.13		.12								.06								.06											0.37
Deary	do	.01		.22			.06							.08																			0.37
Dent	do																																
Driggs	Snake		.12	.14					T.	.14												.25	1.40		1.73	.33	.25	T.	.11	.14	T.		4.61
Emmett	Payette	T.	T.	.20	.10																10				.50	1.23	.20						2.33
Forney	Salmon																																
Garnet	Snake			.32																.30							1.70						2.32
Geneva	Bear			12																			.05	.87				.72	.08				1.84
Glenns Ferry	Snake			08																		.48	.18			.15	.50						1.39
Gooding	Big Wood			.51																			.01	.06	.07	.08							0.73
Grace	Bear																																
Grand Forks	St. Joe																					.40	.20					.02					0.62
Grandview	Snake			.35																		.19			.35	.29	.19						1.37
Grimes Pass ‖	Boise	.07	.02	.14	T.																	.10		T.	.09	.93	.28	.10	.06				1.79
Guffey	Snake				.15																	T.	T.	T.		.34	.02	.13					0.64
Hailey	Big Wood			.16																			T.	.13	.02	.91	.09	.01	.28	.02	T.		1.62
Hollister	Snake		T.	.08	.09		T.		.10	.25												T.	T.	T.	.23	.62	.03	.03	.13		.09		1.65
Hotspring	Bruneau			.10																							.40	1.20					1.70
Idaho Falls	Snake	.02		.08	.01				T.	.22															.29		.99		.06	.06	.07		1.86
Indian Cove	do			.12																							.02	1.65	.03				1.82
Indian Valley ‖	Weiser	.05	.03	.08	.38																	.04			.69	.41	.20	.21		T.			2.09
Irwin	Snake																																
Kellogg ‖	C. d'Alene	.31	.02		.15						.10	.07		.05	.14							.09	.79							.03	T.		1.75
Kilgore	L. Riv. Reg		.02	.03																			.50		2.00	3.50	.40			1.55			8.00
Kirkham	Fayette	T.	T.	.40																		.35			.82	.85							2.42
Kooskia	Clearwater	.30		.10						T.	T.			T.									T.			.26							0.66
Lakeview	P. d'Oreille	.10	.05	.10	T.								1.00										.20	.35					.10				1.90
Landore	Snake	.05	.04	.41	T.																		.14			.11	.45	.23					1.43
Leadore	Salmon																																
Lewiston	Clearwater	T.		.02	T.									.08											T.								0.10
Little Camas	Boise			.25																.05	T.		T.	.22	.25	.03	.81	1.34	.04				2.99
Loon Creek	Salmon	.10		.07																.02	.50	.07		.32	.13	.08	.30	.02		.04			1.65
Mackay	L. Riv Reg			.10																		.15		.40	.74	.30	.83		.15	.10			2.77
Malad	Malad				.20				.02		.06											.34		.13	.16	.04	.03						0.98
Meridian	Boise	T.	.09	.08	.05																.19	T.			1.10	.45	.21			T.			2.17

TABLE 2.—*Daily precipitation for July, 1912. District No. 12*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Idaho—Continued.																																	
Mesa ‖	Weiser																																
Middle Fork	Clearwater																																
Milner	Snake				.20		.04			.11											.90	T.		.13		.34							1.72
Moore	L. Riv. Reg																			T.		.08	.08		.24	.15	.48	.01					1.04
Moscow	Palouse	.12									T.				.07																		0.19
Mountainhome	Snake			.18																.56					.09	.15	1.65			T.			2.63
Murtaugh ‖	do										T.										T.		.10	.08	T.	.10	.54						0.82
New Meadows	Salmon	T.		.39	.25																	.41			.07	.10	.05			.05			1.32
Nezperce	Clearwater	.29		.20	.21															.02													0.72
Oakley	Snake	T.	T.	.13																		.25	.46	.35		.25	.15	.15	.04	.07			1.85
O'Hara Bar	Clearwater																																‡1.05
Orofino	do	.01		.24	.02	.05	T							.02		T.						.01											0.35
Paris	Bear																		.45					12			.10			.09		0.76
Payette	Payette	.08		.28	.03					T.											32	.19			T.	1.50	.05						2.45
Pierson	Salmon		.16	.21																	23				.21	1.29	.86			.46			3.42
Pleasant Valley	Boise		T.	.19	.02																			45	1.07	.10	.48						2.31
Pocatello	Port Neuf			.07						.08												.02	T.	.60	.29	.10	.71	.01	.34	.01			2.23
Pocatello Nursery	do			.11	.06		T.		.03	.02	.04		.03							.10	.06	.21	T.	.06	.23	.21	2.37	.53	.02	.08	.16		4.32
Poplar	Snake									.05												.51	.14		1.77	.24							2.71
Porthill	Kootenai	.06	.04	T.	.51	.09	.02				.35			.01														.05	.01	.20			1.34
Priest River Experiment Station:																																	
No. 1	P. d'Oreille	.05			.28						.33	.33		.17									.03					.02		.09			1.30
No. 2	do	.04			.23						.34	.30		.11									.01					.04		.09			1.16
No. 3	do	.03			.26						.34	.31		.13									.01					05		.09			1.22
Pyle Creek	Payette																																
Richfield	Big Wood		T.	.17	.08																		.03		T.	.60	.01			T.			0.89
Rogerson	Snake			.25						.06														38	.10	.10		.20	.20				1.29
Roseberry	Payette																																
Roseworth	Snake			.28						.05										.03	.05	.25	.02	.20	.05	.25				T.			1.18
Rupert	do			.26	.01	T.				.02											.04		.33	.22	.20	1.04	.15	.08	T.	.10			2.45
St. Anthony	do																																
St. Maries	St. Joe																																
St. Michaels Priory	Clearwater	1.01	.01	.14		.08					.01											.01				.41				.04			1.71
Salmon	Salmon	.08	.28	.06	.03		.03	.04		T.											T.	.15	.08	.10	.10	.14	.07	T.	T.	.20			1.36
Sandpoint	P. d'Oreille			.05	.05						.20	.25		.25															.15				0.95
Sheep Hill	Boise		.15																		.02	.08		.10	2.87	.56	.37	.01		.01			4.17
Shoshone	Big Wood		T.	.25						T.										T.			.01	T.	.47	.07	T.	T.		T.			0.80
Silver City	Owyhee			.57																		.13			.35		.20						1.25
Soldier Creek	Big Wood			.22																			1.05	.06	1.73	.17	.04		.18	.11	T.		3.56
Spirit Lake	P. d'Oreille																																
Springfield	Snake		.05	.07					.05													T.	.40		.39	.05	.21	.06		.11			1.39
Spring Hill	Boise	T.		.23	T.																T.			1.25	.81	1.25	2.81						6.35
Sugar ‖	Snake	.25	T.								.13						.02						.29			1.50	.50	.05		T.			2.74
Sunnyside	do			.03																			.30	.60	.50	.50	.40						2.33
Tripod Mountain	Payette	.09	.09	.41																	T.			T.	T.	1.10	.59						2.28
Twin Falls	Snake		T.	.50						.22											.03		.03	.17	.40	.12	.03			T.			1.50
Vernon	do	.10		.06	T.					.30							T.					.30	.10		3.13	.45	.90		.04	.22			5.60
Wallace	C. d'Alene	.08		.22	.12						.22			.20								.53	.26							.10			1.73
Weiser	Weiser	T.	.03	.21	.02						T.											.12				.80							1.18
Wendell	Big Wood			.15																			.04	.04	.82		.82						1.87
Weston	Bear				.41						.15							.06							.14	.10	.17	.17			.07			1.27
Washington.																																	
Aberdeen	Coast	.06			.31	.02	.31			.52	.05		.06	.30												T.	.05			.10			1.78
Anacortes	Puget Sound	.27			.02	.04	.03			.22				.11															.14				0.83
Anatone	Snake	T.		.10		.18								T.								.15				T.	T.		T.				0.43
Baker	Puget Sound	.10	T.	T.	.30		.30			.30	.10		.20	.20	T.														.30				1.80
Bellingham	do			T.	T.	.26	.05			.21	.35		.13																.05				1.05
Bellingham (near)	do				.03		.04			.20	.36			.10															.05				0.78
Blaine	do	T.	T.		.01	.04	.24	.04		.49	.22		.05	.62															.13				1.84
Blewett	Wenatchee																																
Bremerton	Puget Sound							.50		.02	.04				.24														.01				0.81
Brewster	Columbia				T.																	T.		.08									0.08
Buckley	Puget Sound	.06			.15	.10	.10			.07				.29																.03			0.80
Bumping Lake	Yakima																					T.	.10	.10					T.				0.20
Cedar River	Puget Sound																																
Centralia	Coast	.02			.05		.21			T.			.03	.38															T.				0.69
Clearbrook	Puget Sound	.07		.02	.29	.64	.12	.04		.38	.40		.15	.09	.01														.18	.04			2.43
Cle Elum	Yakima				.05																		.06										0.11
Colfax	Palouse										.10			.10												.05							0.25
Colville	Columbia		.05		T.						.27		.01	.37																			0.70
Conconully	Okanogan	.13	.17	.01	.01		T.						T.									T.	.36	.02									0.70
Coulee City	Columbia																						.14										0.14
Cowiche	Yakima															.10																	0.10
Darrington	Puget Sound										.01		.04	.35																			0.40
Davenport	Columbia			.04										.01									.20						.02				0.27
Dayton	do			.10	T.						.01			T.											T.				T.				0.11
Deer Park	Spokane	.02			.09						.12			.06								.04	.11										0.44
Detroit	Puget Sound	T.			.34		.27			.11	.03			.08																			0.83
Dixie (near)	Columbia			.17	.01									.08												.18							0.44
Douglas Lake	Puget Sound																																
Dryden	Wenatchee																													.01			0.01
Duckabush	Puget Sound																																
Ellensburg	Yakima																																0.00
Eltopia	Columbia																																0.00
Forks	Coast	.37	.09			.30	.32			.31	.25		.25	.89		.08												24					3.10
Fort Simcoe	Yakima																								1.25								1.25
Gerome	Columbia				.13									.06																			0.19
Goat Lake	Puget Sound	.80	.12		.28	.74		.37		.08		.22	.17	.85	.07							.09					.05			.62			4.46
Gold Basin	do																																
Gold Creek	Yakima																						.20										0.20
Gold Hill	do																																
Goldendale	Columbia			.15	.03					T.																							0.18
Granite Falls	Puget Sound	.06			.37		.25		.18	.10	.22		.54	.22	.10														.18				2.44
Guler	Columbia																																
Hanford	do																																0.00
Hatton	do			T.						.01																							0.01
Huntsville	do			.10																						18							0.28
Irene Mountain	do	T.	T.	T.	.22	T.	T.			T.			.40	.08									.03						T.	T.			0.73
Kennewick	do										T.		T.																				T

TABLE 2.—*Daily precipitation for July, 1913. District No. 12*—Continued.

Stations.	Watershed.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Washington—Contd.																																	
Kent	Puget Sound				.15	.03	.12				.12			.04																			0.46
Kettle Falls	Columbia		.01								.11		.05	.21																.02			0.40
Kiona	Yakima																																0.00
Kosmos	Columbia				.04	T.				.10	.12	.35	T.													.03	.01						0.65
La Center	do		.01	.14	T.		.01			.29			.08	.10															T.				0.63
La Crosse	Palouse			T.	T.						T.		T.	T.																			T.
Lake Cleelum	Yakima	T.		T.	T.						T.		T.	.43	T.									.25									0.68
Lake Kachess	do						T.				T.		T.	.38														T.				0.38
Lake Keechelus	do	.05	.01		.10		.10			T.	T.		.22	.54	.05													T.	.20			1.27
Lakeside	Columbia			T.	T.		T.			T.													.03									0.03
Laurel	do																						.04	.02								0.06
Laurier	Kettle	.03	.14	.03	.17	.11				.01	.04		.09	.04	.02							.04		.24	.07				.03	.11			1.17
Lone Tree	Coast	.06	.09		.41	.01	.21			.42	T.		.02	.32	T.														.08				1.62
Longmires Springs	Puget Sound																																
Lost Creek	Columbia	T.		T.										.50									.20	.30									1.00
McConihe	do			T.																				T.				T.					T.
McCumbers Ranch	do			.10																													0.10
Moses Lake	do																																0.00
Mottinger	do			.07																													0.07
Mount Pleasant	Coast																																
Moxee	Yakima									T.													T.										T.
Newport	Pend Oreille	.04		.01	.22						.09			.10								.01	.01							.10			0.58
North Head	Coast	.04		.07	.04		.16			.43			.14	.10														.05					1.03
Northport	Columbia	.20	.43	T.	.29		.01			.01	.01		.12	.11								.02	.26	.09				.12	T.				1.67
North Sundale	do																																0.00
North Yakima	Yakima			T.							T.												T.										T.
Odessa	Columbia	T.		T.						T.				T.									.12						T.				0.12
Olga	Puget Sound	.04		T.	T.	T.	.16			.15	.12		.03	.09														T.					0.59
Olympia	do	.04			.09		.23			.11				.15							T.							T.					0.62
Omak	Okanogan												T.	.06																			0.06
Oroville	do	.30	T.	.20						T.	T.			.15														.07					0.72
Peola	Snake	T.		.15	T.								.03	.07							.03	.01							.05				0.34
Pomeroy	do	T.		T.										.02											.03								0.05
Port Crescent	Coast	.10		.05	.03	T.	.21			.22			.24															T.					0.85
Port Townsend	Puget Sound	.10	.11		.09		.04		.10	.16	.02		.02	.37	.02	.04		.10	.02														1.19
Prosser	Yakima			T.						T.																							T.
Pullman	Palouse			.04							.02					.01																	0.07
Queets River	Coast																																
Quineault	do	.20			.03	.20	.60			.68	.18		.20	.30	.02														.03				2.84
Reardan	Spokane						T.				T.				.04		T.					.52											0.56
Republic	Kettle	.04	.11		.02						.01		.11	.60	T.							.14	.06	.11				.01	.04				1.25
Rex Creek	Columbia																																0.00
Ritzville	do			.03																													0.03
Robertsville	do																																
Rock Lake	Palouse													.01								.19			.07								0.27
Rosalia	do	.01		.27	T.						.06			T.		T.						.02			T.								0.36
Russells Ranch	Yakima						.02			T.	.08		.0	.19								.13	.01					T.					0.47
Seattle	Puget Sound	T.			.07		.25			.03	.02		.3	.01														T.					0.73
Sedro Woolley	do	.14	.01		.37	.08	.18	.01		.20	.29		.10		.01													.18					1.57
Sixprong	Columbia			.02																													0.02
Skagit Power Dam	Puget Sound	.34			.38	.10	.40	.15		.25	.30		.1	.05														.15	.03				2.30
Snohomish	do	.06				.30	.31			.11	.18		.6	.46														.70					2.75
Snoqualmie Falls	do	T.	.02		.14	.03	.09	.01		.07	.03		.23	1.02	.01															.07			1.72
Snoqualmie Pass	Yakima	.08	.11	.03	.04				.02					.07													.14						0.49
Snyders Ranch	Columbia						T.						T.	T.	T.																		T.
South Bend	Coast	.27	.05		.25		.22			.19	.05		.09	.55		.01																		1.68
Spokane	Spokane	.01		.01	.01		.01			T.	.09		T.	.01		T.						.22			.01			T.					0.37
State University	Puget Sound		.02		.13	.01	.19			.01	.05			.07	.01															.01			0.50
Stokes Ranch	Columbia		T.		.02								.0			.03																	0.10
Sullivan Lake	Pend Oreille	.01	.26	T.	.37	.06				.01	.19	T.	.20	.39	.01	.01	T.				T.	.09	1.00	.05						.35			3.00
Sumner	Puget Sound			T.	.12		.26			.09	T.			.03																T.			0.50
Sunnyside	Yakima										T.																						T.
Tacoma	Puget Sound	T.	T.	T.	.22		.16			.12	T.		.03	.02																				0.55
Tatoosh Island	Coast	.13	.03		.06		1.23	T.	.01	1.26		T.	.22	.09	.03	T.									T.	.02		.01	.01				3.11
Tieton Canyon	Yakima																					T.											T.
Touchet	Columbia			.03																													0.03
Touchet Ridge	do			.14	.03									T.											.01				.04				0.22
Trinidad	do																							.06									0.06
Vancouver	do			.03	.02					.03	.07		.08	.04																				0.27
Vashon Island	Puget Sound	.01		T.	.08	.05	.22	T.		.07	.01		.02	.01																				0.47
Wahluke	Columbia																							T.									T.
Wallace	Okanogan	.12	.02	.03	.23		.03			T.				.10	.05							T.		T.									0.58
Walla Walla	Columbia			.03	.01					T.																							0.04
Washougal	do			.20	.12					.16				.10	.10																			0.68
Waterville	do																																
Wenatchee	do																																0.00
Wenatchee (near)	do									T.			T.											T.					T.				T.
White Salmon	do			.13			T.							.03								T.		.05									0.21
Wilbur	do														T.							.59											0.59
Wind River	do	T.		.06	.17		.07			.02	.37		T.	.13	T.																			0.82
Winthrop	do			T.	.09					T.			T.			.09						.02											0.20
Yacolt	do				.16		.08			.10			.16	.34	.01																			0.85
Yale	do				.10		.11			.22	.25		.05	.39																				1.12
Zillah	Yakima																																
Oregon.																																	
Agency Plains	Deschutes			.22											T.										.04								0.26
Albany	Willamette	.01		.36	.04						.03			.11																				0.55
Alpine	do																																
Ana River	SE. Drainage			.08																		.07	.45	.09	1.22	.42							2.33
Ashland	Rogue			.16																				.60	2.00	.10							2.86
Astoria	Columbia	.07		T.	.10		.07			.44	1.01		.10	.43	T.									T.	.01	.10			.04				2.37
Austin	John Day	.02	T.	.14	.03																	.56	.04		.27	.95							2.01
Baker	Snake	.02		.21																	T.	.17			.06	.01							0.07
Bear Creek	Deschutes			.18	.03																			.16	.04	1.38							1.79
Bear Valley	SE. Drainage			.56	.04																.13	.25			.83								1.81
Beech Creek	John Day			.17																	.34	.08			.45								1.04
Bellfountain	Willamette			.87	.01		T.			T.	.01			.03	T.																		0.92
Bend	Big Basin		.21	.02											.23							T.		.09									0.55
Black Butte	Willamette	.05		.60						.10															.10	.05							0.90

TABLE 2.—*Daily precipitation for July, 1913. District No. 12*—Continued.

Stations.	Watershed.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Continued.																																	
Blalock	Columbia									T.												T.										T.
Blue Mt'n Sawmill	Umatilla			.14											.04																	0.18
Brogan	Malheur																																
Buena Vista	Snake	T.	.20	.30	.10																.90					.90						2.40
Burns	SE. Drainage			.15																			.15	1.25	.17	.27						1.99
Burns Mill	do			.15																		.25	.20	.90	.15	.35	.04					2.04
Butte Falls	Rogue			.46																				.43	1.54	.14					.04	2.61
California Gulch	Umatilla			.16																												0.16
Camp Creek	Deschutes																															
Cascade Locks	Columbia			.15	.25		.06			.13	.06		.08	.10																		0.83
Cascadia	Willamette	.04		.75	.12		.03		.01		.30			.15								T.				.03						1.43
Cazadero	do	T.	.01	.14	.10					.02	.12		.11	.06	.06											T.				.12		0.74
Centralpoint	Rogue																															
Christmas Lake	SE. Drainage			.20											T.	.01					.02		.32		.85	.19	.01					1.60
Clear Lake	Willamette			.50	.05						.18			.07								.01	.23	.09								1.13
Cliff	SE. Drainage			.19																	.06				.72	.20						1.17
Columbia Mine	Snake	.05		.47	.02																	.41	.14	T.	.92	.39	T.					2.40
Condon	John Day																															0.00
Coquille River Lighthouse.	Coast		T.	.44			T.			.03																						0.47
Cornucopia	Snake	.13		.77																		.34		.03		.18	T.					1.45
Corvallis	Willamette			.50						.25				.16	.02																	0.93
Cracker Creek	Snake		T.	.05																		.03	.06	.02	.03	.05	T.					0.24
Crescent	Deschutes			.20											.05							.03	T.	.43	.07	.15						0.93
Culver	do			.27											.16										.07							0.50
Dayville	John Day			.07	.02					T.					T.	.06						.08			T.	.20						0.43
Deadwood	Coast		.93	.03			.02			.18	.04		T.																			1.20
Diamond	SE. Drainage	T.		.18	.06																			.08	.71	.73	.32					2.08
Doraville	Columbia	T.		.01	.26		T.			.05	.05		.06	.44	.01											T.			.08	.02		0.98
Drain	Umpqua			.70																												0.70
Dufur	Columbia																															
Echo	Umatilla			.09							.03																					0.12
Ella	Columbia																															
Embody	SE. Drainage			.23																		.20	.15	.23	.36	.10						1.27
Eugene	Willamette	.06		.57							T.		T.																			0.63
Fir Glen	Coast			1.15						.04											.01				.04		.02					1.26
Florence	do			1.13	.10		T.			.19	.02		.02	.05																		1.51
Follyfarm	Malheur			.40																	.04			.36	1.82	.40						3.02
Forest Grove	Willamette	.15		.07						.02	.01		.02	.11																		0.38
Fort Rock	SE. Drainage			.18																	T.	T.	T.	.45	.26						T.	0.89
Galice	Rogue			.35				T.														.86	.15	.29	.50	.01						2.16
Gardiner	Umpqua																															
Gibbon	Umatilla																															
Glassbutte	Deschutes			.55																		.77		.15	.51	.05						2.03
Glencoe	Columbia			.07																												0.07
Glendale	Umpqua																							.08	.23							0.31
Glenora	Coast	.04		.06	.10		.15			.24	.10		.03	.42	.03							T.							T.			1.17
Gold Beach	Rogue																															
Golden Falls	Coast			1.56	.05		.22			.13	.07		T.	.10																		2.13
Grants Pass	Rogue			.31																				.63	.60	.03						1.57
Grass Valley	John Day																															0.00
Greenhorn	Snake	.02	.02	.63			.01								.04	.07					.09	.36	.01	.10	.38	.01				.01		1.75
Gumboot	do	.14		.18	.02																				T.		.20					0.54
Gurdane	Columbia			.01																	.01											0.02
Happy Home	Umpqua	.03		.67	.16		.03	T.	T.												T.			.08	.20	.08	T.					1.25
Harbor	Coast			1.10	.10	T.	T.		T.	.06	.11										T.		T.	.85	.53	.10	T.				T.	2.85
Hazeldell	Willamette		.23	.30										T.						T.			T.	T.						T.	0.53
Headworks	do	.01		.20	.23	T.	T.			.26	.05		.30	.18	.16	T.													.06			1.45
Heppner	Columbia	.03		.09	T.					T.				T.	T.																	0.12
Hermiston	Umatilla			.05																												0.05
Hilgard	Grande Ronde.		.05											T.	.10						.05	T.			1.20				T.		T.	1.40
Hillcrest Orchard	Rogue																															
Hollywood Orchard	do			.17																			T.	1.18	1.33	.14						2.82
Hood River	Columbia			.15																												0.15
No. 2	do			.11			T.			T.			T.	T.																		0.11
No. 3	do			.15						T.																						0.15
No. 4	do		T.	.25																												0.25
Hoover	Willamette			.49	.07		.02			T.	.12		.02	.10									.76				T.					1.58
Howardville	G. Ronde	.04		.21							.04			.03								.25	.02									0.59
Huntington	Snake				.04																	T.			.01	.03			.02			0.10
Ibex Mine	John Day	.01		.34												.01						.31		T.	.10	.41						1.18
Imperial	Deschutes	T.		.17	.03																.03	.02			.17	.16						0.58
Ironside	Snake			.05																		.60				.20						0.85
Jacksonville	Rogue			.19																			1.00	1.59	1.26	.10						4.14
Joseph	G. Ronde	.18			.10																	.36										0.64
Klamath Falls	Klamath			.13																				.15	.99	.10						1.37
La Grande	G. Ronde																															
Laidlaw	Deschutes			.20											.05	.05								1.63	.08							2.01
Lakeview	Pitt			.32																		T.	T.	.79	1.14	.17			.27			2.69
La Pine	Deschutes			.27											.93						.20				.10							1.50
Lilyglen	Rogue		.09	.22	.04																		.15	1.14	1.65	.18	.03				.03	3.53
Long Creek	John Day	.04		.15											.10						T.				.15							0.44
McKenzie Bridge	Willamette	.03	.02	.68	.12	.01	T.				.06			.11								.26	.11	.03								1.43
McMinnville	do			.10	.01					.14				.04																		0.29
Marshfield	Coast	.10	T.	1.01	T.	T.	T.			T.	.02		T.	.08					T.							T.				.01		1.22
Maury	Deschutes		.10	.07																	.20	.23				.88						1.48
Meadow Bk. Ranch	Columbia			.15						.03				.02																		0.20
Medford	Rogue			.17																	T.		.05	.90	1.45	.17						2.74
Merrill	Int. drain'ge			.18																		.01	.04	.05	1.62	.12					T.	2.02
Metolius	Deschutes		.15																													0.15
Miramonte Farm	Willamette			.14	.03					.15			.21	.10																		0.63
Mountain Home	Columbia	.14		.01	.13		.03			.20	.06		.08	.29																		0.94
Mount Angel	Willamette			.36						.03																						0.39
Mountain Ranch	Rogue	T.	0.3																					1.00	1.20	.30	.10					2.63
Mount Hood	Columbia			.21										.05																		0.26
Musick	Umpqua	.05		.40							1.10													.05	.11	.09	.08					1.88
Newport	Coast			.49	.19	.03	.01			.12				.27																		1.11
Ochoco	Deschutes			.16	.03						T.					.08					T.	.11	T.		.15	.10					T.	0.63
Ochoco Creek	do			.07										.06								.43	.27		.23							1.06
Odell	Columbia			.20																												0.20

TABLE 2.—*Daily precipitation for July, 1913. District No. 12*—Continued.

Stations.	Watershed.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Continued.																																	
Ortley	Columbia			.09																													0.09
Owyhee	Owyhee			.32		.22															.28		.04	.46	1.10	.39							2.67
Paisley	SE. drain'ge.			.07									T.														.25						2.34
Parkdale	Columbia			.14																													0.39
Pendleton	Umatilla				.14																												0.14
Peninsula	Deschutes				.20										.38										T.								0.58
Persist	Rogue			.70																	.15	.05	.15	.80	.95	.12							2.92
Pompeii	Columbia																																
Portland	Willamette	T.		.07	T.					.17			T.	T.																			0.24
Port Orford	Coast			.42	.11		.02			.20	.12													T.	.14	T.							1.01
Post	Deschutes			.15																	.38				2.05								2.58
Powell Butte	do			.15																		.02			.50								0.67
Power House	Columbia																																0.00
Prairie City	John Day			.31	.11											.02					.02	.30		.70	.06	.03							1.55
Prineville	Deschutes			.12												.15						T.	.10		T.								0.37
Prospect	Rogue			.76																T.		T.	.42	.78	.95	.13							3.04
Rager Creek	Deschutes			.11																		.35			.62	.14							1.22
Ramsey	Columbia			.13																													0.13
Range	John Day		.20														.02								.20								0.42
Ray Creek	Columbia			T.						T.					T.																		T.
Redmond	Deschutes			.18											.08									.10									0.36
Reston	Umpqua			.96																	.01				.05								1.02
Richland	Snake																																
Riddle	Umpqua	.03	T.	.54																					.16	.02	.12						0.87
Riley	SE. drain'ge.			T.																		.10	.25	.80	.02								1.17
Rio Hermoso	Deschutes			.32																					.07								0.39
Riverdale	do																																
Riverside	Malheur	T.	T.	.25																T.		.05		1.85	1.65	.75	.05						4.60
Robbville	Deschutes			.23												.11																	0.34
Roseburg	Umpqua		.04	.48						T.											T.			.02	.02	.05							0.61
Salem	Willamette			.23						.06																							0.29
Seneca	SE. drain'ge.			.26	.05																.01	.35	.35	.85									1.87
Silver Lake	do			.15																				.49	1.10	.10							1.84
Siskiyou	Rogue			.08																				.82	2.22	.11							3.23
Sisters	Deschutes			.25																	.04	.20	.02	.14									0.65
Sparta	Snake			.05																		.70		.40	T.								1.15
Stafford	Willamette	.02	.01	.11	.01					.18	.01		.04	.13	.01																		0.52
Starkey	G. Ronde			.29												.07						.03				.37							0.76
Summit	Willamette			.80	.05		T.			.13	.03			.09																			1.10
Summit Prairie	Deschutes																																
Susanville	John Day	.30		.20											T.						T.		.16	.17	.30								1.13
Tablerock	Rogue			.33																				.53	1.04	.13							2.03
Talent	do			.15																			.40	.65	1.60	.09							2.89
Tamarack	John Day	.05		.05						.04					.01																		0.15
The Dalles	Columbia			.09																													0.09
Tillamook	Coast			.03	.10			.10		.01	.35		.05	.20		.13						T.				.01		.01	.05	.13			1.17
Toledo	do			.50	.05					.35				.05																			0.95
Trail	Rogue			.55																		.65	T.	.49	.73	.05						.04	2.51
Umatilla	Columbia			.14						T.																							0.14
Union	G. Ronde	.08		.20	.01	.06										.01						.17			.43								0.96
Vale	Malheur	.11		.17	.05																				.87	.77							1.97
Valley Falls	SE. drain'ge.																								1.00	.48				T.	T.		1.48
Van	Malheur																																
Vida	Willamette	.01		1.15										.24												T.							1.40
Vistillas	Pitt			.71	.01																	1.33		.24	1.59	.44		T.	.03				4.35
Waldo	Rogue			.41																				.78	.92	.13							2.24
Wallace Orchard	Willamette			.20	T.					.09																							0.29
Walloupa	G. Ronde	.01		.15	.11	.01					T.			T.								.26											0.54
Wallowa	do	.08		.17	T.						.02			T.		.02						.29			T.								0.58
Wamic	Deschutes			.10						T.																							0.10
Warmsprings	do		.02	.01																	T.				.07								0.10
Wasco	Columbia			.14																													0.14
Welches	do			.50						.03	.20		.23	.75																.15			1.86
Weston	Walla Walla	T.	T.	.11											T.																		0.11
Whitaker	Deschutes			.12																	.11	.01	.11	T.	.56	.32							1.23
Williams	Rogue			.23																		T.		1.08	1.12	.10							2.53
Yonna	Int. drain'ge.																						.18	.24	.89	.35							1.66

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 12, Columbia Valley.*

Date.	Montana.				Afton, Wyo.		Idaho.																			
	Kalispell.		Missoula.				Boise.		Bonners Ferry.		Hotspring.		Lewiston.		Mackay.		New Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	64	46	71	44	75	35	76	54	64	46	87	55	67	53	72	40	63	38	82	47	74	39	87	53	76	40	58	44
2....	68	46	68	48	75	46	69	48	66	41	77	47	77	48	73	45	65	33	69	54	74	54	77	47	64	49	64	37
3....	70	44	68	46	70	45	67	56	65	37	73	54	68	55	64	46	60	45	69	51	69	51	67	52	65	47	65	41
4....	66	51	70	51	68	42	80	53	65	51	82	50	80	52	81	43	72	48	75	50	76	49	78	48	67	43	70	50
5....	74	48	81	50	80	37	93	60	77	44	90	57	89	60	83	42	82	42	86	53	89	42	93	53	79	41	80	48
6....	88	52	94	52	86	39	98	66	85	47	100	54	96	61	85	42	86	42	87	57	90	46	98	63	85	49	91	51
7....	78	50	85	62	84	46	93	58	77	51	96	64	84	57	87	53	82	51	90	64	91	50	95	62	82	50	77	49
8....	80	43	90	46	85	50	95	61	80	48	99	61	97	57	87	50	86	48	91	67	92	45	99	61	85	46	87	41
9....	86	50	93	50	86	49	93	67	79	48	99	62	87	63	89	51	86	45	90	61	94	48	98	61	86	50	78	48
10....	71	49	74	57	74	51	81	57	69	52	90	57	80	62	90	55	75	42	79	65	84	52	81	56	75	51	70	55
11....	69	48	72	51	65	42	76	53	70	45	84	57	80	52	75	47	73	31	73	54	78	38	77	57	70	42	68	46
12....	72	40	80	42	76	34	85	52	70	45	92	52	80	52	80	47	74	33	82	47	87	42	89	45	76	56	70	39
13....	60	42	64	52	78	35	67	50	59	40	90	54	68	53	79	32	64	44	74	53	84	49	68	52	69	45	72	41
14....	69	38	73	33	77	37	78	42	68	40	80	42	78	47	80	44	71	22	82	42	76	32	81	36	73	27	69	36
15....	70	38	75	42	79	40	77	48	72	38	81	50	81	54	79	41	78	39	79	48	84	37	80	48	75	44	70	38
16....	72	38	84	37	84	39	86	49	78	39	87	50	88	53	81	43	79	33	87	47	85	36	88	43	80	39	79	39
17....	76	42	84	40	80	39	90	53	82	40	91	52	91	53	80	40	80	47	90	53	87	40	92	49	82	45	83	38
18....	86	46	90	40	83	41	88	56	87	44	93	56	97	55	82	41	86	32	90	55	93	44	93	49	87	42	89	42
19....	91	53	92	49	85	47	93	58	94	47	100	60	100	60	85	51	93	44	88	65	95	48	98	55	84	51	92	48
20....	91	57	98	54	83	44	93	72	89	53	95	65	105	65	83	50	89	51	88	62	93	58	95	68	86	52	95	50
21....	84	60	80	56	81	45	89	69	90	59	99	66	89	72	84	52	78	56	84	61	93	57	94	60	83	50	89	56
22....	83	56	92	56	78	39	92	69	87	54	100	70	99	69	81	46	85	52	83	60	88	48	86	64	74	56	90	55
23....	85	52	89	54	77	55	93	67	88	51	93	64	101	67	82	51	79	53	78	56	90	50	89	60	82	53	90	54
24....	83	53	92	50	73	54	68	65	94	48	94	55	102	68	70	55	79	56	75	57	82	58	76	58	81	53	89	51
25....	87	50	78	54	67	41	73	59	85	54	92	53	92	70	67	52	72	56	73	53	74	53	76	60	69	52	81	55
26....	74	51	73	54	70	41	76	59	83	50	85	50	89	63	66	49	80	47	75	49	75	55	75	53	62	50	83	51
27....	77	46	83	44	65	35	79	57	84	55	90	54	95	60	71	47	80	42	76	48	81	53	82	54	71	44	82	48
28....	80	47	86	44	72	40	83	63	78	50	86	60	88	61	70	45	79	42	74	56	84	46	85	53	71	50	77	49
29....	64	42	70	54	72	43	73	58	63	41	83	62	77	61	70	48	80	44	71	56	70	49	76	54	66	45	66	45
30....	73	36	77	38	66	41	77	50	78	39	80	49	87	52	68	38	76	29	71	45	78	34	80	47	65	36	75	36
31....	80	45	90	42	72	30	89	56	88	44	90	51	98	56	80	41	82	32	82	44	88	38	90	49	75	39	88	43
Mns..	76.5	47.1	81.2	48.1	76.3	42.0	82.9	57.6	77.9	46.5	89.6	55.9	87.4	58.4	78.2	46.0	77.9	42.5	80.4	54.2	83.8	46.5	85.3	53.9	75.6	45.7	78.6	45.9

Date.	Weston, Idaho.		Washington.																							
			Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	82	43	68	48	66	49	75	46	70	60	77	53	60	54	76	48	71	48	58	43	66	52	76	58	66	52	65	50
2....	76	51	67	48	65	48	70	43	72	49	78	51	60	54	73	48	71	45	62	44	63	51	75	47	68	47	64	47
3....	70	40	73	50	64	40	72	43	71	50	71	51	64	56	72	56	68	50	63	41	63	53	72	55	68	50	64	52
4....	72	43	66	56	71	54	76	48	71	40	80	53	63	57	78	56	77	53	65	51	65	56	80	56	73	54	68	56
5....	83	43	78	55	70	57	84	45	85	53	85	55	63	57	82	52	84	45	65	53	74	56	85	57	81	54	74	57
6....	86	48	68	58	68	56	90	48	78	41	94	56	62	57	89	57	92	61	62	47	66	55	95	67	89	59	69	54
7....	90	48	71	48	68	50	87	43	80	42	84	51	60	54	80	48	81	43	63	44	68	52	97	57	78	53	68	50
8....	89	58	76	50	71	45	90	40	76	40	91	52	64	54	88	49	92	45	65	43	78	53	85	65	86	50	78	49
9....	89	54	63	48	68	55	78	46	74	54	84	62	60	57	80	58	86	60	58	52	65	57	78	58	79	61	67	56
10....	84	54	69	54	65	54	75	49	65	53	80	56	63	56	78	51	81	56	60	44	60	54	84	49	74	57	64	56
11....	77	46	74	45	68	43	81	42	61	46	82	54	62	55	78	49	78	48	62	39	70	52	81	59	74	49	69	52
12....	82	39	66	55	68	51	75	39	77	46	80	52	59	52	74	52	74	42	63	44	59	51	76	53	71	51	66	52
13....	84	47	68	47	65	48	62	38	71	48	71	49	62	53	71	48	70	42	63	41	64	48	72	48	64	47	64	47
14....	82	42	72	51	68	51	75	38	72	47	79	45	61	55	74	44	74	36	63	48	64	53	80	45	71	43	66	49
15....	84	46	71	49	68	48	80	42	78	40	81	53	60	56	77	50	78	45	63	46	67	55	80	46	74	48	70	54
16....	90	47	75	45	69	42	85	42	81	40	86	53	59	53	83	52	85	47	60	40	71	53	87	58	80	49	70	50
17....	92	49	76	44	72	42	87	40	85	41	91	53	58	52	87	56	90	47	62	46	73	52	91	60	84	48	71	49
18....	86	48	92	49	79	47	91	44	93	44	95	58	76	51	92	59	92	49	83	44	80	57	99	64	88	52	78	54
19....	90	59	91	55	80	52	95	48	93	57	99	60	60	53	96	64	98	53	86	50	86	62	101	70	94	59	83	57
20....	88	53	91	55	80	54	100	54	94	48	98	64	62	55	98	69	102	66	83	50	84	62	105	70	95	66	82	58
21....	87	55	80	55	78	54	94	52	93	62	97	68	64	57	98	70	99	69	78	52	86	61	103	79	94	65	89	59
22....	86	55	76	58	80	50	97	54	93	60	99	63	64	56	95	70	96	63	68	49	87	59	102	78	91	62	89	62
23....	79	59	72	57	79	51	96	52	88	54	96	66	60	56	97	71	98	70	62	49	81	58	103	77	92	67	84	57
24....	81	57	65	58	78	52	96	50	85	57	102	65	58	56	96	69	99	63	63	52	77	57	102	75	95	63	76	57
25....	81	67	64	59	73	57	90	52	78	60	96	67	62	56	90	66	93	62	65	54	68	58	88	65	89	66	69	56
26....	77	44	74	54	72	53	90	51	76	53	91	61	64	58	87	58	89	54	63	52	71	56	90	63	84	60	74	56
27....	78	43	65	56	74	48	90	52	82	47	92	67	62	56	90	59	90	53	61	52	78	55	94	60	87	58	77	54
28....	79	48	64	53	69	54	81	46	86	49	80	55	61	53	87	62	87	58	60	42	63	54	80	50	79	58	66	54
29....	82	51	72	44	69	44	72	38	88	51	85	50	58	55	78	50	77	45	62	38	70	50	84	51	71	51	69	50
30....	76	51	81	49	74	54	85	37	87	40	90	55	58	54	84	52	84	43	65	49	75	54	86	53	81	46	74	51
31....	83	38	97	55	81	48	93	48	99	47	99	50	80	51	90	53	94	50	80	48	82	61	97	55	88	55	83	56
Mns..	82.7	49.2	73.7	51.9	71.6	50.0	84.3	45.5	80.7	49.0	87.5	56.4	62.2	54.8	84.5	56.3	85.5	52.0	65.7	46.7	71.7	55.1	88.0	59.6	80.9	54.8	72.6	53.6

TABLE 3.—*Maximum and minimum temperatures at selected stations for July, 1913. District No. 12*—Continued.

Date.	Washington.				Oregon.																			
	Tatoosh Island.		Walla Walla.		Ashland.		Baker.		Eugene.		Port Orford.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	60	51	68	58	68	51	56	43	69	50	65	50	82	56	66	52	68	54	66	42	68	51	76	56	74	52
2.....	62	52	74	53	71	46	66	38	70	46	65	47	84	50	68	42	67	51	71	33	70	49	78	50	70	43
3.....	63	52	70	53	68	50	63	50	68	44	56	50	74	55	64	51	68	53	67	47	70	52	75	56	74	55
.....	64	54	81	60	78	53	72	51	71	55	65	54	83	54	70	56	72	59	80	44	76	57	76	55	90	53
5.....	63	54	88	60	85	49	84	50	80	50	67	54	84	53	74	51	82	59	89	42	79	52	90	54	87	54
6.....	60	54	96	64	82	54	91	54	73	51	63	54	95	55	68	57	74	59	90	51	79	58	90	62	99	55
7.....	64	53	84	56	82	49	81	48	74	51	69	50	88	49	70	49	75	51	85	36	80	57	85	52	96	60
8.....	64	54	97	60	87	50	91	55	83	48	62	46	98	45	71	45	84	52	97	40	86	52	94	54	96	58
9.....	59	54	82	64	81	48	75	53	80	49	63	50	89	60	74	50	70	56	95	38	82	53	93	65	94	59
10.....	62	55	80	58	81	48	72	50	73	56	68	55	85	49	71	55	68	57	96	40	76	58	76	61	86	57
11.....	62	52	81	54	84	45	73	44	77	45	72	63	85	53	73	45	76	51	85	35	81	50	84	54	84	54
12.....	59	50	75	57	78	46	71	45	72	50	66	56	83	50	67	56	69	54	79	36	70	50	81	59	88	45
13.....	60	50	71	51	72	47	62	40	72	48	67	50	78	49	68	47	69	52	69	37	71	48	74	51	.....	.....
14.....	63	52	79	51	72	43	70	36	72	48	68	50	83	44	68	50	70	52	70	35	73	52	79	49	.....	.....
15.....	61	53	80	58	78	41	71	45	75	46	69	51	84	56	70	45	70	52	77	33	76	50	80	55	.....	.....
16.....	60	50	89	52	79	45	77	48	76	46	68	51	90	45	72	45	76	53	84	37	79	47	87	53	.....	.....
17.....	61	51	91	61	85	46	80	50	80	48	70	52	94	49	67	47	81	54	90	40	83	49	89	57	92	40
18.....	63	51	97	60	95	53	85	48	91	46	67	49	100	49	85	46	92	61	95	41	98	52	98	56	93	52
19.....	64	51	94	65	89	52	87	52	88	65	73	46	96	54	76	49	94	66	95	44	84	60	102	59	98	54
20.....	73	52	105	73	92	52	90	58	90	70	72	50	105	57	72	53	93	71	94	47	86	68	100	68	98	62
21.....	67	50	96	75	92	53	80	62	92	65	65	53	100	69	74	59	90	70	95	60	95	66	100	70	94	67
22.....	64	53	99	73	90	60	85	61	89	63	72	54	100	70	69	56	90	66	94	61	93	62	101	69	96	66
23.....	57	52	101	70	74	60	85	63	83	58	63	51	104	67	69	58	85	62	96	56	77	60	100	74	96	66
24.....	58	54	99	72	69	60	79	61	74	58	59	56	102	70	67	56	84	62	89	58	69	64	93	73	85	67
25.....	59	53	89	66	70	59	72	58	70	61	65	52	99	67	65	58	73	62	85	53	70	62	89	66	74	63
26.....	63	53	88	63	76	58	78	50	74	56	68	56	91	62	69	55	73	59	85	41	74	57	93	62	88	58
27.....	58	52	92	64	81	52	82	50	83	46	69	50	95	62	70	50	81	57	89	42	84	52	86	64	88	54
28.....	57	51	84	66	81	51	80	52	79	50	72	54	85	60	70	54	73	55	86	41	82	54	86	64	90	55
29.....	61	51	78	58	77	50	68	47	76	50	68	55	83	57	69	56	75	53	78	47	80	56	83	58	85	61
30.....	61	52	87	53	86	51	76	42	84	49	78	54	91	45	76	44	84	57	89	36	90	50	91	56	82	48
31.....	68	51	97	62	92	55	86	45	90	47	64	53	99	46	72	48	98	63	98	42	99	56	99	56	91	44
Mns.....	61.9	52.2	86.8	61.0	80.5	50.9	77.0	50.0	78.3	52.1	67.0	51.9	90.6	55.1	70.5	51.1	78.2	57.5	85.7	43.1	80.0	55.0	88.0	59.3	88.44	55.64

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

WEATHER, FORECASTS, AND WARNINGS.

By H. C. FRANKENFIELD, Professor of Meteorology.

NORTHERN HEMISPHERE PRESSURE DISTRIBUTION.

Over the east-central Pacific Ocean, as indicated by the observations at Honolulu, the pressure fluctuations were small, with a tendency toward a slight excess above the normal during the first half of the month. There was, however, a quite well defined depression on the 14th. Over the Aleutian Islands high pressure prevailed almost uniformly, with exceptionally high crests on the 5th, 6th, and 12th. The only low area of the month occurred on the 29th. Conditions over northwestern Alaska corresponded with those over the Aleutians, but to the southward and eastward moderately low pressure was the rule, except from the 20th to the 24th, inclusive.

Over the Northwest (both in the United States and Canada) there were the usual alternations of moderate high and low areas, except during the seven days beginning with the 16th, when high pressure ruled. The most pronounced low area of the month occurred on the 11th, and its southern edge extended southward into the lower Missouri Valley. Over the eastern and southern portions of the country there were no developments of special interest, although the general pressure tendency was toward below-normal conditions, with well-defined lows on the 7th, 10th, 13th, and 19th over the northeastern districts.

Over the Atlantic Ocean the usual high pressure prevailed, with relatively high barometer readings, as a rule, over the western ocean. Over the Azores moderately low pressure prevailed from the 20th to the 25th instant.

Marked high pressure also prevailed over Iceland and the British Isles, while over western Europe there were alternations of moderate high and low areas.

Low pressure prevailed over Russia, except over the extreme northern portion. Over Siberia and eastern China high pressure during the first half of the month was followed by moderately low pressure during the second half, the only exception having been a severe north coast depression on the 4th and 5th. Over the Philippines normal pressure prevailed during the first half of the month and moderately low pressure thereafter.

WEATHER IN THE UNITED STATES.

The weather of the month was of a character that could ordinarily be expected during July. There were the usual alternations of high and low pressure areas, bringing with them periods of warm and dry and cool and showery weather, but perhaps only one of the pressure types is deserving of special mention. Abnormally low pressure prevailed over the Northwest on the 10th and 11th, with the lower end of the depression extending down over Kansas. However, this lower end was quickly filled up and the upper end first passed eastward to Lake Superior and afterward northeastward.

While heavy local showers occurred over various sections of the country, there was a general deficiency as a whole during the first half of the month, and very dry conditions were reported from Virginia northward. During the third week of the month there was plenty of rain in the Southeast, but none of consequence west of Alabama and over the Great Central Valleys except in the upper Ohio Valley. Dry weather also continued from Virginia northward, and there was but little rain west of the Mississippi River, except over a narrow strip of country extending from northern Arizona and northern New Mexico northeastward into South Dakota and southern Minnesota.

During the fourth week of the month no well-defined low-pressure area moved over the country, but precipitation occurred over practically all sections. It was, however, not of great consequence except in the South Atlantic and east Gulf States, where there were frequent showers of substantial quantity. Over the western portion of the country low temperatures for the season prevailed, but elsewhere throughout the United States temperatures were moderate. The last three days of the month were characterized by low pressure over the Northwest and the persistence of the Atlantic Ocean high area, resulting in some of the highest temperatures of the season over the Middle Atlantic States, the Great Central Valleys, and the Plains States, although a high area over the Northwest on the 30th was attended by falling temperature, that on the last day of the month extended over the central and northern districts west of the Mississippi River. On the afternoon of the 30th, following several days of extreme heat, there was a severe local storm in the vicinity of Washington, D. C. Several lives were lost, and the property losses were estimated at about $1,000,000. The wind reached a velocity of 68 miles an hour from the northeast, but the storm limits did not extend more than a few miles beyond the city. In the South and far West moderate temperatures continued. Precipitation during these last three days was in the form of local thundershowers over limited areas, except in the South Atlantic and east Gulf States where, as during the previous week, thundershowers were of daily occurrence.

There were no tropical disturbances noted during the month.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since Jan. 1.	Average departures since Jan. 1.
New England	12	69.8	+1.0	+15.1	+2.2
Middle Atlantic	15	75.2	+0.8	+20.7	+3.0
South Atlantic	10	80.5	+1.5	+16.1	+2.3
Florida Peninsula [1]	9	81.7	+0.5	+ 9.9	+1.4
East Gulf	11	81.1	+0.8	+ 5.4	+0.8
West Gulf	11	83.1	+1.1	− 4.7	−0.7
Ohio Valley and Tennessee	14	78.4	+1.6	+ 9.8	+1.4
Lower Lakes	11	71.4	−0.3	+ 8.2	+1.2
Upper Lakes	13	67.1	+1.0	+ 2.3	+0.3
North Dakota [1]	9	65.5	−2.6	− 2.8	−0.4
Upper Mississippi Valley	14	76.7	−1.3	+ 3.3	+0.5
Missouri Valley	12	77.9	+2.1	+ 7.5	+1.1
Northern slope	9	66.2	−1.9	− 9.5	−1.4
Middle slope	6	79.0	+2.2	− 0.8	−0.1
Southern slope [1]	8	81.9	+1.5	− 6.4	−0.9
Southern Plateau [1]	9	80.3	−1.6	−18.9	−2.7
Middle Plateau [1]	10	69.4	−1.7	− 8.7	−1.2
Northern Plateau [1]	11	67.4	−1.7	−14.2	−2.0
North Pacific	7	61.9	+0.7	− 3.9	−0.6
Middle Pacific	7	66.2	+0.7	− 4.3	−0.6
South Pacific	4	71.4	+1.6	− 2.9	+0.4

[1] Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Current month.	Percentage of normal.	Current month.	Accumulated since Jan 1.
New England	11	2.06	58	−1.50	−3.80
Middle Atlantic	15	3.32	77	−1.00	−2.00
South Atlantic	11	5.06	83	−1.00	−2.60
Florida Peninsula [1]	9	4.93	70	−2.10	−3.00
East Gulf	11	4.63	87	−0.70	0.00
West Gulf	10	2.05	63	−1.20	−3.70
Ohio Valley and Tennessee	14	3.83	95	−0.20	+2.20
Lower Lakes	10	2.48	73	−0.90	+2.50
Upper Lakes	14	3.73	119	+0.60	−0.20
North Dakota [1]	9	2.25	82	−0.50	−4.40
Upper Mississippi Valley	15	3.07	75	−1.00	−2.00
Missouri Valley	12	2.70	71	−1.10	−2.90
Northern slope	9	1.49	94	−0.10	−0.20
Middle slope	6	2.01	199	+1.00	−2.30
Southern slope [1]	8	1.98	69	−0.90	−2.50
Southern Plateau [1]	9	0.84	68	−0.40	−0.20
Middle Plateau [1]	11	1.03	141	+0.30	−0.80
Northern Plateau [1]	11	1.11	182	+0.50	+0.60
North Pacific	7	1.02	142	+0.30	−4.50
Middle Pacific	7	0.08	800	+0.10	−7.70
South Pacific	4	0.10	900	+0.10	−2.10

[1] Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	72	− 8	Missouri Valley	59	− 7
Middle Atlantic	69	− 5	Northern slope	56	+ 4
South Atlantic	78	− 2	Middle slope	52	− 8
Florida Peninsula	76	− 2	Southern slope	49	−10
East Gulf	77	− 1	Southern Plateau	42	+ 4
West Gulf	71	− 3	Middle Plateau	45	+13
Ohio Valley and Tennessee	68	− 1	Northern Plateau	52	+11
Lower Lakes	67	− 2	North Pacific	76	+11
Upper Lakes	70	− 2	Middle Pacific	59	− 7
North Dakota	68	+ 2	South Pacific	65	+ 1
Upper Mississippi Valley	65	− 3			

Average cloudiness and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	5.0	−0.1	Missouri Valley	3.3	−0.9
Middle Atlantic	4.5	−0.4	Northern slope	4.1	+0.4
South Atlantic	5.0	−0.2	Middle slope	3.8	−0.3
Florida Peninsula	4.3	−0.7	Southern slope	3.0	−1.5
East Gulf	5.7	+0.3	Southern Plateau	3.3	0.0
West Gulf	3.3	−0.8	Middle Plateau	3.9	+0.8
Ohio Valley and Tennessee	4.6	0.0	Northern Plateau	3.8	+1.1
Lower Lakes	4.1	−0.4	North Pacific	4.9	+0.3
Upper Lakes	4.7	+0.1	Middle Pacific	3.5	0.0
North Dakota	4.0	−0.4	South Pacific	3.3	+0.5
Upper Mississippi Valley	4.2	−0.1			

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Alpena, Mich	27	52	sw.	Mt. Tamalpais, Cal.	12	52	nw.
Buffalo, N. Y.	4	54	nw.	Mt. Weather, Va.	14	56	w.
Do.	6	50	nw.	New York, N. Y.	13	50	w.
Do.	12	66	sw.	Norfolk, Va.	2	60	n.
Do.	13	62	sw.	North Head, Wash.	6	54	s.
Cleveland, Ohio	27	66	nw.	Point Reyes Light, Cal.	1	75	nw.
Dayton, Ohio	14	54	nw.	Do.	2	67	nw.
Green Bay, Wis.	5	50	nw.	Do.	9	66	nw.
Hatteras, N. C.	15	54	nw.	Do.	12	56	nw.
Do.	19	53	nw.	Do.	13	54	nw.
Do.	20	52	nw.	Do.	14	54	nw.
Jacksonville, Fla.	20	50	sw.	Roswell, N. Mex.	14	64	w.
Kansas City, Mo.	11	57	nw.	St. Paul, Minn.	2	50	n.
Lander, Wyo.	29	52	sw.	Do.	31	58	w.
Lexington, Ky.	19	51	w.	Syracuse, N. Y.	23	54	sw.
Louisville, Ky.	19	54	nw.	Tatoosh Island, Wash.	6	60	sw.
Minneapolis, Minn.	31	50	w.	Trenton, N. J.	24	72	w.
Mt. Tamalpais, Cal.	1	56	nw.	Toledo, Ohio	13	55	sw.
Do.	2	72	nw.	Do.	28	50	sw.
Do.	3	71	nw.	Valentine, Nebr.	15	52	nw.
Do.	7	52	nw.	Washington, D. C.	30	68	ne.
Do.	8	54	nw.				
Do.	9	61	nw.				
Do.	10	64	nw.				

RIVERS AND FLOODS, JULY, 1913.

By ALFRED J. HENRY, Professor in Charge, River and Flood Division.

The annual rise in the Columbia River and its tributaries that was in progress during the month of June had entirely subsided by the middle of July.

The very heavy rains during the night of July 13 over the headwaters of the Sandusky River and the western half of the Muskingum River watershed caused the smaller tributaries of these rivers to rise to above flood stage. The rise at Duck Creek was almost equal to that which occurred in March, 1913. Portions of the lower valley of Duck Creek were from 10 to 25 feet under water. The Muskingum at McConnellsville crested at 28.8 feet, 5.8 feet above flood stage, and at Beverly 29.0 feet, 4.0 feet above flood stage, on July 15.

A heavy rainfall on July 24 in the vicinity of Boise, Idaho, caused a very rapid rise in the small streams, doing considerable damage in that city and vicinity.

Elsewhere the rivers were at moderate or low stages. In portions of Missouri, Kansas, and Oklahoma the smaller streams were entirely dry.

Losses due to July, 1913, floods.

State.	River system.	Item 1. General loss, bridges, etc.	Item 2.		Item 3. Suspension of business.
			Crops.	Live stock.	
Oregon [1]	Columbia	$63,527	$92,645		$91,220
Idaho [2]	Boise				
Ohio	Muskingum	1,160,590	500,000	2,000	20,800

[1] Occurred during May, June, and July.
[2] Losses estimated at from $100,000 to $150,000. It is impossible to separate the losses by items.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

[Australia. Commonwealth bureau of meteorology.]
Rainfall map of Australia [and Tasmania] for the year 1912. [Melbourne. 1913.] 1 sheet. 56½ x 64 cm.
[Revised average annual and monthly rainfall and temperature maps of Australia and Tasmania.] [Melbourne. 1912.] 8 sheets. 24 x 31 cm.
Average rainfall map and isohyets of Tasmania, Div. no. 6, Section 6. Accompanied by a memorandum. [Melbourne. 1912.] 1 sheet. 32½ x 26½ cm.

Batavia. Royal magnetical and meteorological observatory.
Observations made at the royal magnetical and meteorological observatory at Batavia in 1910. Batavia. 1913. xxiv, 93 p. f°.
Observations made at secondary stations in Netherlands East-India, by W. van Bemmelen. Vol. 1. Batavia. 1913. x, 20 p. 3 plates. f°. [Introduction presents a sketch of the development of meteorological observations in Netherlands East-India.]

Bavaria. Königl. Bayerisches Hydrotechnisches Bureau.
Jahrbuch für das Jahr 1912; Heft I—Niederschlagsbeobachtungen, Heft II—Schneehöhenmessungen. München. [1913.] var. pag. f°.

Börnstein, Richard.
Leitfaden der Wetterkunde. 3d ed. Braunschweig. 1913. x, 270 p. 26 plates. 8°.

Brebner, C. W.
South Indian Ocean cyclones of 1911 and 1912. Mauritius. 1912. [x], 20 p. 2 maps. 8°.

Defant, A.
Das Klima von Innsbruck mit besonderer Rücksicht auf den Föhn. Wien, etc. n. d. p. 405–410. 8°. (Sonderabdruck aus der Deutschen Rundschau für Geographie, 34. Jahrg. 9tes Heft.)

Fischli, Friederich.
Aeronautische Meteorologie. Berlin. 1913. 213 p. 8°. (Bibliothek für Luftschiffahrt & Flugtechnik. Band 7.)

France. Service hydrométrique du bassin de la Seine.
Observations sur les cours d'eau et la pluie, 1911/12. [Paris. 1912.] 7 sheets. f°.
Résumé des observations centralisées pendant 1911/12. [Paris. 1912.] 21 p. f°.

Greifswald. Meteorologische Station.
Die Ablesungen der meteorologischen Station Greifswald, 1912. Greifswald. 1913. [ii], 50 p. 8°.

Hann, Julius von.
Die gleichzeitigen interdiurnen Luftdruck- und Temperaturänderungen auf dem Sonnblickgipfel (3105 m) und zu Salzburg (430 m) mit Bemerkungen über die unperiodischen Luftdruckschwankungen. Wien. 1913. 92 p. 8°. (Aus den Sitzungsberichten der kaiserl. Akademie der Wissenschaften in Wien, Math.-naturw. Kl., Bd. 122, Abt. IIa, Jänner, p. 45–136.)

Hess, Clemens.
Über die Entstehung der Trombe von Schönenbaumgarten am 19. Juli 1912. Frauenfeld. 1913. [ii], 33 p. 4°. (Beilage zum Programm der Thurg. Kantonsschule für das Schuljahr 1912–13.)
Die Entstehung der Tromben aus Luftwogen. [Frauenfeld. 1913.] 23 p. 8°. (Sonderabdruck aus dem 20. Heft "Mitteilungen der thurg. naturf. Gesellschaft.")

[Japan. Hydrographic office.]
[Meteorological charts of the adjacent seas of Japan.] [Tokyo. 1913.] 15 charts. 64 x 102 cm. ("The present volume may be regarded as the revised edition of 'Pilot chart of the adjacent seas of Japan,' Tokyo, 1905.")

Livingston, Edward Burton.
Climatic areas of the United States as related to plant growth. (Botanical contributions from the Johns Hopkins university, no. 32.) n. p. [1913.] p. 257–275. plates 9–11. 8°.
(Reprinted from Proc. amer. phil. soc., v. 52, no. 209, April, 1913.)

[Meyermann, Benno.]
Resultate der meteorologischen Beobachtungen in Tsingtau aus den Jahren 1898 bis 1908. [Tsingtau. 1912.] 2 p. l., 40 p. 12 fig. 8°.

Mysore. Meteorological department.
Meteorology in Mysore for 1911. Bangalore. 1913. 2 p. l., xiv, 56 p. f°.

Prague. Kaiserliche königliche Sternwarte.
Magnetische und meteorologische Beobachtungen, 1912. Jahrgang 73. Prag. 1913. iv, 47 p. f°.

Prussia. Königliches preussisches meteorologisches Institut.
Ergebnisse der Niederschlags-Beobachtungen im Jahre 1911. Berlin. 1913. xxviii, 154 p. illus. f°. (Veröffentlichungen, No. 259.)

Ricchieri, Giuseppe.
La Libia. Milano. [1913.] 144 p. 16°. [The climate is described on p. 84–98.]

Smithsonian institution.
Advisory committee on the Langley aerodynamical laboratory. Washington. 1913. [ii], 5 p. 8°. (Smithson. misc. coll., v. 62, no. 1. Publication no. 2227.)

Smithsonian Institution. Astrophysical observatory.
Annals, v. 3. Washington. 1913. xi, 241 p. f°.

Southport. Fernley observatory.
Report and results of observations, 1912. Southport. 1913. iii, 32 p. 8°. [Describes and figures the new "Fernley" recording raingage.]

Sweden. Hydrografiska byrån.
Årsbok 3, år 1911. Stockholm. 1913. xi, 279 p. illus. f°.

RECENT PAPERS BEARING ON METEOROLOGY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau.

Cairo scientific journal. Alexandria. v. 7. 1913.
Craig, J. I. The effect of the Mediterranean Sea on the temperature in Egypt. p. 103–110. (May.)
Curry, P. A. Sunshine in the summer of 1912. p. 111–115. (May.) [Effects of the haze of 1912.]
Keeling, B. F. E. The normal barometer at Helwan. p. 121–128. (June.)
Bliss, E. W. Thunderstorm statistics of Egypt. p. 130–132. (June.)

Franklin institute. Journal. Philadelphia. v. 176. August, 1913.
Humphreys, W[illiam] J[ackson]. Volcanic dust and other factors in the production of climatic changes, and their possible relation to ice ages. p. 131–172.

International institute of agriculture. Bureau of economic and social intelligence. Monthly bulletin. Rome. 4th year. June, 1913.
Rohrbeck, W. German local hail insurance associations. p. 55–83.

Royal meteorological society. Quarterly journal. London. v. 39. July, 1913.
Lempfert, R. G. K. British weather forecasts past and present. p. 175–184.
Dines, W[illiam] H[enry]. The vertical distribution of temperature in the atmosphere, and the work required to alter it. p. 185–192.
Corless, R., Dobson, G., & Chree, Charles. Meteorological, electrical, and magnetic observations during the solar eclipse of April 17, 1912. p. 221–236.

Royal society of South Africa. Transactions. Cape Town. v. 3. pt. 2. 1913.

Sutton, J. R. A note concerning the physical significance of the mean diurnal curve of temperature. p. 187–194.

Sutton, J. R. A preliminary survey of the meteorology of Kimberley. p. 205–229.

Science. New York. v. 38. August 8, 1913.

Brooks, Charles F. Three ice storms. p. 193–194.

Scientific American. New York. v. 109. August 2, 1913.

Talman, Charles Fitzhugh. The airman and the weather. Aeronautic meteorology: A new branch of applied science. p. 94; 101–102. [Fig. 2 is printed upside down.]

Scientific American supplement. v. 76. August 23, 1913.

Humphreys, W[illiam] J[ackson]. Volcanic dust as a factor in the production of climatic changes. Perhaps responsible for profound geological effects. p. 114. [Repr. Journ. Wash. Acad. Sci.]

Gustave Eiffel, builder of the world's highest structure and one of the foremost authorities on aerodynamics. p. 121.

Symons's meteorological magazine. London. v. 48. July, 1913.

Mossman, R. C. Southern hemisphere seasonal correlations. p. 104–105.

Gethin Jones, J. R. The latest snow spot. p. 109–110.

Washington academy of sciences. Baltimore. v. 3. August 19, 1913.

Briggs, Lyman J., & Belz, J. O. Evaporation in the great plains and intermountain districts as influenced by the haze of 1912. p. 381–386.

Archives des sciences physiques et naturelles. Genève. tome 36. 15 juillet 1913.

Rosselet, A. Ionisation de l'atmosphère et radiation solaire. p. 73–75.

Astronomie. Paris. 27 année. Août 1913.

Rousselet, Louis. Curieux effet de mirage. p. 365–366.

Ciel et terre. Bruxelles. 34 année. Juin 1913.

V. D. V. Vulgarisation de la météorologie. p. 179–184.

Bertyn, F. Les précipitations des 24–26 août 1913. p. 190–192. [Gives cases of excessive rainfall in Belgium.]

Poskin, P. Météorologie agricole. p. 200–202.

Technique aéronautique. Paris. tome 8. 1 août 1913.

Maurain, Ch. La commission mixte de météorologie et l'aéronautique. p. 84–86.

Annalen der Hydrographie und maritimen Meteorologie. Berlin. 41. Jahrgang. Heft 8. 1913.

Baschin, Otto. Die Beeinflussung der Temperatur des Meerwassers durch die Nachbarschaft von Eisbergen. p. 414–417.

Annalen der Physik. Leipzig. 4. Folge. Band 41. Heft 4. 1913.

Millikan, R. A. Über den wahrscheinlichsten Wert des Reibungskoeffizienten der Luft. p. 759–766.

Deutsche Luftfahrer Zeitschrift. Berlin. 17. Jahrgang. 1913.

Seddig, M. Über elektrisches Aufladen von Ballonhüllen und über isolierende und leitend gemachte Ballonhüllen. p. 364–366. (23. Juli.)

Moock, F. W. Messen der Windgeschwindigkeit mittels Hitzdraht Instrumenten. p. 384–386. (6. August.)

Himmel und Erde. Berlin. Jahrgang 25. Juli 1913.

Mi. Mineralische Bestandteile im Staube der Atmosphäre. p. 470–472. [Abstract of memoir by W. N. Hartley.]

Meteorologische Zeitschrift. Braunschweig. Band 30. Juli 1913.

Busch, Friedr[ich]. Beobachtungen über die atmosphärisch-optische Störung des Jahres 1912. p. 321–330.

Hann, J[ulius] v. Zur Meteorologie der zentralen Region des Felsengebirges von Colorado. Nach Prof. Alfred J. Henry. p. 330–340.

Langbeck, K. Die schmale Sturmschadenzone an der preussisch-sächsischen Grenze vom 12. Mai 1912. p. 340–347.

Linke, F[ranz], Richard Börnstein. p. 347–349.

Barkow, E. Über die atmosphärische Störung im Jahre 1912. p. 350–351.

Peppler, A. Zur Aerologie Nordostgrönlands. p. 351–353.

Atmosphärische Trübung im Sommer 1912. p. 353–354.

Naegler, Wilhelm. Die Niederschlagsverteilung in Dresden während der Jahre 1906 bis 1912. p. 354–356.

Mars, S. Einfluss der Witterung auf den täglichen Barometergang in den Tropen. p. 356–357.

Köppen, W[ladimir]. Auflösung von Wolken durch Aufsteigen. p. 357–358.

Hegyfoky, J[akob]. Aufblühen und Fruchtreife. p. 360–362.

Petermanns Mitteilungen. Gotha. 59. Jahrgang. Mai 1913.

Knörzer, Albert. Temperaturanomalien und Luftdruckverteilung im Hochsommer und Frühherbst 1911 und 1912. p. 232–237.

Physikalische Zeitschrift. Leipzig. 14. Jahrgang. 1. August 1913.

Vegard, L. Photographische Aufnahmen des Nordlichtspektrums mit einem Spektographen von grosser Dispersion. p. 677–681.

Wertheimer, E. Messung der Stromkurve in Luft bei Ionisierung durch β- und γ-Strahlen. p. 711–717.

Hillers, Wilhelm. Photographische Aufnahmen einer mehrfachen Luftspiegelung. p. 718–719.

Hillers, Wilhelm. Bemerkung über die Abhängigkeit der dreifachen Luftspiegelung nach Vince von der Temperaturverteilung. p. 719–723.

Prussia. Königlich preussisches meteorologisches Institut. Abhandlungen. Berlin. Band 4. 1913.

Elsner, G[eorg] v. Über den Einfluss des Windes auf den Barometerstand an Höhenstationen. p. 1–37. (Nr. 8.)

Schindelhauer, F. Über die Elektrizität der Niederschläge. p. 1–51. (Nr. 10.)

Barkow, E. Vorläufiger Bericht über die meteorologischen Beobachtungen der deutschen antarktischen Expedition 1911/12. p. 1–11. (Nr. 11.)

Zeitschrift für Balneologie. Berlin. 6. Jahrgang. 1913.

Berliner, Bernh. Beiträge zur Physiologie der Klimawirkungen. IV. Experimentalpsychologische Untersuchungen über die Wirkung des Seeklimas. p. 246–253. (1. Aug.)

Grosse. Über die Abkühlungsgeschwindigkeit. p. 253–255. (1. Aug.)

Società degli spettroscopisti italiani. Memorie. ser. 2. v. 11. Agosto 1913.

Platania, Giovanni. Osservazioni dei punti neutri della polarizzazione atmosferica eseguite in Catania nel 1912. p. 137–142.

CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given for the various sections of the climatological service of the Weather Bureau the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION, BY SECTIONS, JULY, 1913.

Section.	Temperature (in °F.).							Precipitation (in inches and hundredths).					
	Section average.	Departure from the normal.	Monthly extremes.					Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest. Date.			Station.	Amount.	Station.	Amount.
Alabama	81.1	+ 1.0	Tuscaloosa	106	19	Riverton	51 8	5.00	− 0.33	Robertsdale	14.80	Tuscumbia	1.58
Arizona	78.6	− 2.0	Parker	121	15	Alpine	28 28	1.73	− 0.14	Fairbank	4.75	Sentinel	0.02
Arkansas	81.5	+ 1.6	4 stations	104	6	Dutton	55 21	4.31	+ 0.35	Wynne	11.54	Whitecliffs	0.52
California	73.1	− 0.9	Heber	119	10	Deer Creek	27 14	0.46	+ 0.42	Madeline	4.48	31 stations	0.00
Colorado	65.8	− 0.4	2 stations	109	2†	3 stations	24 12†	2.16	− 0.01	Fort Morgan	5.61	Lay	0.12
Florida	81.8	+ 0.7	Wausau	104	18	Fort Meade	61 10†	5.23	− 1.93	Johnstown	11.59	Malabar	0.26
Georgia	81.3	+ 1.2	Talbotton	110	19	Mineral Bluff	50 8	5.61	+ 0.09	Abbeville	12.43	2 stations	2.64
Hawaii (June)	72.7	.....	Honokaa	91	29	Humuula	36 2	6.78	.....	Olaa	19.99	Waiopae Ranch	0.00
Idaho	65.7	− 2.2	3 stations	105	6†	2 stations	22 14	1.92	+ 1.15	Spring Hill	6.35	Lewiston	0.10
Illinois	78.3	+ 2.7	4 stations	108	17†	Sycamore	41 25	2.12	− 1.54	Riley	6.55	Monmouth	0.05
Indiana	77.8	+ 2.8	4 stations	108	30	Hammond	39 23	3.27	− 0.58	Bluffton	8.83	Veedersburg	0.82
Iowa	76.1	+ 2.7	3 stations	108	16†	Washta	45 10	1.82	− 2.62	Lansing	6.23	2 stations	T.
Kansas	82.1	+ 4.4	Farnsworth	116	13	2 stations	47 12†	1.31	− 2.46	Fort Scott	8.28	Clay Center	0.00
Kentucky	79.9	+ 3.3	Greensburg	109	18	Farmers	48 7	2.54	− 2.07	Blandville	6.67	St. John	0.35
Louisiana	81.6	− 0.2	Liberty Hill	105	28	Walker	52 18†	7.19	+ 0.57	Donaldsonville	19.35	Shreveport	0.70
Maryland and Delaware.	75.9	+ 0.3	2 stations	102	1†	Deer Park, Md.	38 8	2.77	− 1.73	Deer Park, Md.	6.80	Delaware City, Del.	0.53
Michigan	68.4	− 0.1	Holland	102	30	Seney	30 25	3.24	+ 0.14	Pontiac	6.51	Port Austin	0.89
Minnesota	67.3	− 1.3	3 stations	100	29†	Littlefork	33 25	5.56	+ 2.22	Collegeville	15.16	Halstad	2.00
Mississippi	81.4	+ 0.5	Greenwood	104	19	Duck Hill	56 22	5.18	− 0.11	Merrill	10.77	Big Creek	0.69
Missouri	80.2	+ 3.2	2 stations	108	16†	Ironton	47 22	3.13	− 1.47	Cassville	7.68	Unionville	0.03
Montana	63.6	− 2.4	3 stations	102	7†	Bowen	18 14	1.63	+ 0.23	Valentine	4.98	Victor	0.35
Nebraska	75.9	+ 2.0	York	112	16	Curly	33 31	2.31	− 1.07	Curtis	6.33	Du Bois	0.13
Nevada	69.1	− 1.8	Logan	113	6†	San Jacinto	18 13	1.30	+ 0.95	Golconda	4.51	Caliente	T.
New England	69.6	+ 0.6	Franklin, N. H.	102	1	Houlton, Me	32 25	2.66	− 1.33	St. Johnsbury, Vt.	7.56	Nantucket, Mass.	0.58
New Jersey	74.4	+ 0.6	4 stations	100	2†	Charlotteburg	41 12	2.52	− 2.32	Culvers Lake	4.72	Trenton	1.50
New Mexico	72.3	− 0.3	2 stations	109	11	Elizabethtown	28 28	1.27	− 1.15	Deming	3.95	Laguna	T.
New York	68.7	+ 0.2	3 stations	101	1†	2 stations	33 12	2.23	− 1.90	Port Jervis	6.92	Morrisville	0.42
North Carolina	78.2	+ 1.3	Monroe	106	19	Banners Elk	40 8	4.75	− 0.88	Newbern	10.60	Hot Springs	1.37
North Dakota	65.6	− 2.0	Forman	103	29	2 stations	35 24	2.30	− 0.37	Steele	4.96	Orange	0.89
Ohio	74.5	+ 1.0	3 stations	103	29†	Garrettsville	40 11	5.20	+ 1.11	Zanesville	13.12	Thurman	1.71
Oklahoma	83.9	+ 3.7	Meeker	111	30	2 stations	50 22	2.29	− 0.78	Weatherford	7.86	Hartshorne	0.04
Oregon	65.1	− 0.5	Blalock	109	20	Whitaker	23 13	1.19	+ 0.52	Riverside	4.60	Condon (2)	0.00
Pennsylvania	71.8	− 0.3	4 stations	101	1†	3 stations	40 22	4.16	− 0.33	Claysville	8.00	Lebanon	0.82
Porto Rico	77.5	− 1.2	2 stations	95	18†	Maricao	52 8	4.96	− 1.55	Coloso	17.21	Santa Isabel	0.23
South Carolina	81.9	+ 2.0	2 stations	109	19	Saluda	56 8	4.78	− 0.91	Beaufort	9.81	Effingham	1.15
South Dakota	71.1	− 0.4	Timber Lake	106	7	Pine Ridge	35 31	2.43	+ 0.01	Pearl Creek	5.68	Vale	0.19
Tennessee	80.0	+ 2.3	3 stations	104	18	Mountain City	45 8	3.45	− 0.96	Elizabethton	7.87	Dandridge	0.90
Texas	83.8	+ 1.2	3 stations	110	10†	Romero	49 28	1.29	− 1.62	Greenville	10.95	14 stations	0.00
Utah	69.5	− 2.4	St. George	111	5	Park City	21 7	1.24	+ 0.42	Park City	7.06	2 stations	T.
Virginia	76.0	+ 0.8	Ivor	102	2	Mountain Lake	37 8	4.33	− 0.32	Newport News	10.84	Emory	0.86
Washington	66.8	− 0.5	Hanford	110	23	Wilbur	27 14	0.59	+ 0.15	Goat Lake	4.46	8 stations	0.00
West Virginia	74.2	+ 1.1	Point Pleasant	103	30	Bayard	40 8	5.80	+ 1.17	Glenville	10.07	Madison	2.14
Wisconsin	68.3	− 0.7	Beloit (3)	100	30	Hayward	31 25	6.47	+ 2.57	Prentice	10.81	Plymouth	3.40
Wyoming	61.7	− 1.3	Fort Laramie	103	6	Fountain, Y. N. P.	19 30	2.36	+ 1.00	Lake, Y. N. P.	6.58	Hyattville	0.12

TABLE I.—*Climatological data for United States Weather Bureau stations, July, 1913.*

Districts and stations.	Elevation of instruments.			Pressure in inches.			Temperature of the air, in degrees Fahrenheit.											Mean wet thermometer.	Mean temperature of the dew point.	Mean relative humidity, per cent	Precipitation, inches			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.						Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.						
New England.							**69.8**	**+1.0**												**72**	**2.06**	**− 1.5**									**5.0**		
Eastport	76	67	85	29.80	29.88	−0 05	62.0	+ 2.2	87	4	71	48	1	53	33	57	54	79	2.68	− 0.7	13	5,876	s.	29	s.	10	7	16	8	6.1			
Greenville	1,070	6	....	28.74	29.89	.....	64.4	.....	90	4	75	43	9	54	34	....	....	....	5.01	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portland, Me.	103	82	117	29.80	29.92	− .03	68.6	+ 0.6	101	1	78	52	9	60	38	61	56	67	2.27	− 1.0	10	7,037	s.	31	s.	23	13	8	10	5.3			
Concord	288	70	79	29.61	29.91	− .05	70.0	+ 0.9	99	1	83	45	12	57	43	....	....	....	1.25	− 2.5	10	3,966	nw.	28	w.	13	12	13	6	4.7			
Burlington	404	11	48	29.47	29.90	− .04	68.5	+ 0.3	94	4	79	46	12	58	34	....	....	....	2.83	− 1.0	14	7,353	s.	37	s.	9	5	13	13	6.0			
Northfield	876	12	60	28.99	29.92	− .02	65.3	− 1.3	95	1	78	42	26	52	42	60	56	70	3.37	− 0.3	13	5,132	s.	29	sw.	9	5	17	9	5.9			
Boston	125	115	188	29.79	29.92	− .04	73.8	+ 2.5	96	1	83	60	26	65	27	64	59	65	2.69	− 0.7	9	7,532	sw.	39	n.	30	11	15	5	4.7			
Nantucket	12	14	90	29.94	29.95	− .03	69.8	+ 2.3	87	2	77	58	3	63	22	65	63	83	0.58	− 2.1	4	10,554	sw.	37	se.	18	15	15	1	3.8			
Block Island	26	11	46	29.92	29.95	− .02	70.4	+ 2.3	88	2	77	60	12	64	23	65	63	82	1.23	− 2.1	9	10,505	sw.	48	ne.	30	13	15	3	4.5			
Narragansett	....	9	....	.....	.....	.....	69.4	− 0.5	94	2	78	51	8	60	28	....	....	....	2.29	.....	7	.....	sw.	.....	.....	28	2	1	.....	.....	.....	.....	.....	.....
Providence	160	141	165	29.77	29.94	− .03	73.4	0.0	93	1	83	57	8	64	25	65	60	68	2.29	− 1.2	9	8,821	sw.	48	nw.	10	11	18	2	4.2			
Hartford	159	122	140	29.77	29.94	− .03	73.2	+ 1.6	95	1	84	53	12	62	29	64	59	66	1.83	− 2.3	8	5,897	s.	32	s.	10	6	20	5	5.2			
New Haven	106	117	155	29.84	29.95	− .02	73.5	+ 1.6	95	30	84	54	12	64	25	64	59	65	1.69	− 3.1	9	6,411	s.	35	sw.	13	9	18	4	4.5			
Middle Atlantic States.							**75.2**	**+ 0.8**												**69**	**3.32**	**− 1.0**									**4.5**		
Albany	97	102	115	29.82	29.92	− .04	72.8	+ 0.8	99	1	84	49	12	62	33	63	57	61	1.82	− 2.1	10	5,574	s.	30	sw.	9	18	11	2	3.3			
Binghamton	871	10	69	29.05	29.96	− .01	69.3	− 0.6	97	1	81	46	12	57	40	....	....	....	1.55	− 2.0	10	3,738	sw.	28	s.	9	6	14	11	5.9			
New York	314	414	454	29.63	29.96	− .02	75.0	+ 1.5	95	30	83	57	7	67	23	65	60	65	3.02	− 1.5	7	11,114	nw.	50	w.	13	15	9	7	4.6			
Harrisburg	374	94	104	29.59	29.98	.00	75.6	+ 1.1	98	1	85	57	26	66	28	65	60	62	2.92	− 1.0	9	4,161	nw.	33	w.	23	9	14	8	5.3			
Philadelphia	117	123	184	29.86	29.98	.00	78.0	+ 2.2	97	2	87	61	7	69	25	67	62	64	4.29	0.0	9	6,710	nw.	35	nw.	24	13	14	4	4.3			
Reading	325	81	98	29.63	29.97	.....	75.6	.....	97	29	86	56	26	65	28	66	61	64	2.35	.....	9	4,747	nw.	33	nw.	23	11	11	9	5.4			
Scranton	805	111	119	29.13	29.98	.00	71.6	− 0.2	96	1	82	52	26	51	31	66	63	77	4.97	+ 1.1	10	4,923	s.	32	sw.	12	12	13	6	4.5			
Atlantic City	52	37	48	29.93	29.98	.00	74.1	+ 1.6	90	19	81	59	8	68	23	67	64	74	1.56	− 2.2	8	5,475	sw.	30	n.	2	16	11	4	4.0			
Cape May	17	13	49	29.98	30.00	+ .02	74.2	+ 0.8	91	2	81	61	16	67	24	69	67	82	3.46	− 0.3	7	5,277	s.	36	nw.	2	15	16	0	3.4			
Trenton	190	159	183	29.76	29.96	.....	75.6	.....	97	30	86	58	7	65	27	65	60	63	1.50	.....	8	7,821	sw.	72	w.	24	16	8	7	4.3			
Baltimore	123	100	113	29.86	29.98	.00	78.6	+ 1.3	98	2	88	61	7	70	24	68	62	63	2.63	− 2.2	10	4,978	s.	31	n.	2	10	17	4	4.3			
Washington	112	62	85	29.87	29.98	− .02	77.6	+ 0.8	97	29	88	58	26	67	31	68	63	66	3.24	− 1.4	11	4,527	w.	68	ne.	30	13	13	5	4.2			
Lynchburg	681	83	88	29.29	30.01	.00	78.6	+ 1.3	99	30	88	57	8	69	26	70	66	70	1.53	− 2.5	6	1,968	sw.	14	sw.	12	11	20	0	4.7			
Mount Weather	1,725	10	75	28.22	29.98	− .01	71.6	+ 0.2	90	29	80	51	7	64	22	64	60	72	2.24	− 2.4	11	9,988	nw.	56	w.	14	8	18	5	5.4			
Norfolk	91	170	205	29.92	30.02	+ .02	78.2	− 0.2	97	2	86	61	8	70	26	71	68	76	10.24	+ 4.4	12	7,458	sw.	60	n.	2	13	11	7	4.7			
Richmond	144	11	52	29.86	30.01	.00	79.0	− 0.2	97	30	89	60	8	69	26	70	66	72	3.65	− 0.8	12	4,652	s.	36	sw.	12	12	14	5	4.4			
Wytheville	2,293	40	47	27.73	30.02	+ .02	73.6	+ 1.0	92	30	84	47	8	63	34	67	65	80	2.66	− 1.8	12	3,349	w.	20	nw.	19	13	17	1	4.0			
South Atlantic States.							**80.5**	**+ 1.5**												**78**	**5.06**	**− 1.0**									**5.0**		
Asheville	2,255	70	84	27.78	30.05	+ .03	74.0	+ 2.3	94	19	84	51	8	64	30	67	65	79	3.16	− 1.7	13	3,934	nw.	30	n.	7	7	15	9	5.9			
Charlotte	773	68	76	29.22	30.04	+ .02	80.4	+ 1.7	102	19	90	61	8	70	30	72	69	76	4.42	− 1.1	11	4,247	sw.	35	w.	24	6	15	10	6.0			
Hatteras	11	12	50	29.99	30.00	− .01	78.8	+ 0.2	89	5	84	65	8	74	15	74	73	84	3.78	− 2.4	10	9,825	sw.	54	nw.	15	5	21	5	5.3			
Manteo	12	12	46	.....	.....	.....	79.7	.....	97	6	89	53	8	70	....	....	....	....	3.22	− 2.9	9	.....	sw.	.....	.....	.....	19	11	1	.....	.....	.....	.....	.....	.....
Raleigh	376	103	110	29.63	30.01	− .01	80.0	+ 1.5	99	18	90	64	8	70	30	71	68	75	5.51	− 0.6	12	5,150	sw.	40	s.	3	8	18	5	5.1			
Wilmington	78	81	91	29.96	30.04	+ .03	80.0	+ 1.3	96	3	88	66	8	72	21	74	72	84	5.93	− 1.0	13	5,365	sw.	37	n.	19	6	21	4	4.9			
Charleston	48	11	92	30.01	30.06	+ .03	82.6	+ 1.3	95	3	89	71	15	76	23	76	73	77	5.51	− 1.8	8	7,510	s.	45	n.	15	7	15	9	5.6			
Columbia, S. C.	351	41	57	29.67	30.04	+ .02	82.2	+ 1.1	102	19	92	65	8	72	33	72	69	74	5.82	− 0.2	12	4,647	sw.	36	e.	19	7	14	10	5.6			
Augusta	180	80	97	29.85	30.04	+ .02	82.4	+ 1.9	102	19	92	68	8	73	26	73	70	73	5.48	+ 0.2	9	3,985	s.	36	ne.	31	7	10	14	6.1			
Savannah	65	150	194	29.99	30.06	+ .03	82.4	+ 1.9	97	3	91	69	17	74	23	74	72	80	6.53	+ 0.4	13	7,470	sw.	44	n.	17	3	19	9	5.9			
Jacksonville	43	96	129	30.03	30.08	+ .05	82.3	+ 1.4	97	16	91	68	13	73	25	74	72	79	6.28	+ 0.1	15	5,608	sw.	50	sw.	20	11	19	1	4.5			
Florida Peninsula.							**81.7**	**0.0**												**76**	**3.66**	**−2.8**									**4.3**		
Key West	22	10	64	30.04	30.06	+ .03	82.8	− .09	90	17	88	73	11	78	14	75	73	74	1.00	− 2.6	9	7,114	se.	31	sw.	8	15	15	1	4.0			
Miami	25	37	72	30.07	30.10	.....	81.3	− .06	91	18	88	70	14	75	19	75	72	73	2.98	− 4.3	11	5,191	se.	22	sw.	7	2	26	3	5.6			
Sand Key	23	39	72	30.02	30.05	+ .02	80.7	.....	88	6	83	69	7	78	15	76	73	77	1.95	.....	9	8,887	e.	37	ne.	14	15	15	1	4.1			
Tampa	35	79	96	30.05	30.08	+ .04	81.2	+ 1.2	93	29	90	65	24	73	28	75	73	80	7.01	− 1.4	19	3,959	e.	33	ne.	3	9	20	2	4.7			
Titusville	44	6	....	30.04	30.09	.....	81.5	+ 0.4	96	20	92	67	10	72	26	....	....	....	3.87	.....	12	.....	se.	.....	.....	.....	18	13	0	3.3			
East Gulf States.							**81.1**	**+ 0.8**												**77**	**4.63**	**− 0.7**									**5.7**		
Atlanta	1,174	190	216	28.86	30.07	+ .02	79.6	+ 2.0	99	19	89	65	8	70	25	70	67	75	4.85	+ 0.1	17	6,571	sw.	42	w.	15	10	6	15	5.9			
Macon	370	78	87	29.66	30.05	+ .03	81.7	+ 2.0	104	19	91	67	9	72	28	73	70	75	6.56	+ 1.9	13	3,669	s.	26	s.	24	8	10	13	5.9			
Thomasville	273	8	57	29.78	30.06	+ .03	82.3	+ 0.5	104	18	93	69	27	72	29	74	72	80	4.78	− 0.5	12	3,087	sw.	24	s.	23	9	13	9	5.4			
Pensacola	56	140	182	30.02	30.08	+ .07	81.0	− 0.4	97	18	87	69	23	75	20	74	72	77	7.96	+ 0.7	16	8,130	s.	49	s.	23	7	16	8	5.9			
Anniston	741	9	57	29.31	30.09	+ .07	79.8	+ 1.9	100	19	90	61	8	70	31	....	....	....	4.12	− 0.6	14	3,366	s.	33	n.	20	9	14	8	4.8			
Birmingham	700	11	48	29.33	30.08	+ .07	80.6	− 0.9	99	19	90	68	21	71	30	72	68	74	4.72	0.0	13	3,980	s.	31	se.	19	12	12	7	4.9			
Mobile	57	98	106	30.01	30.07	+ .06	81.4	+ 0.9	98	6	89	70	6	74	28	74	72	79	4.41	− 2.6	18	4,604	sw.	35	ne.	6	5	18	8	5.7			
Montgomery	223	100	112	29.83	30.07	+ .05	82.0	+ 1.0	101	19	92	69	15	73	28	73	70	75	2.30	− 2.4	12	4,372	sw.	33	se.	19	9	11	11	5.7			
Meridian	375	84	93	29.67	30.05	+ .03	80.6	+ 0.6	97	19	90	68	9	71	26	72	70	78	4.77	+ 0.3	11	3,081	sw.	23	sw.	10	4	13	14	6.7			
Vicksburg	247	62	74	29.80	30.07	+ .07	81.4	+ 1.0	97	8	90	69	22	73	25	73	71	77	1.06	− 3.4	8	4,007	sw.	34	nw.	8	4	18	9	6.0			
New Orleans	51	90	121	30.01	30.06	+ .06	81.6	+ 0.3	96	19	89	68	6	74	26	75	73	80	5.37	− 1.1	16	4,709	s.	42	s.	23	8	12	11	5.7			
West Gulf States.							**83.1**	**+ 1.1**												**71**	**2.05**	**− 1.2**									**3.3**		
Shreveport	249	77	93	29.77	30.03	+ .05	83.3	+ 1.2	99	19	93	70	31	74	24	74	71	72	0.70	− 3.0	7	4,921	s.	32	s.	25	14	11	6	4.0			
Bentonville	1,303	11	44	28.67	30.00	+ .03	79.4	+ 0.9	100	9	91	60	22	68	30	....	....	....	4.64	+ 0.3	9	3,775	s.	20	nw.	11	13	14	4	4.2			
Fort Smith	457	79	94	29.51	29.98	+ .01	83.0	+ 2.0	101	9	94	66	12	72	32	72	68	68	3.69	− 0.2	10	4,662	e.	31	n.	9	11	12	8	5.0			
Little Rock	357	139	147	29.65	30.02	+ .03	81.6	+ 1.0	98	19	90	67	19	73	31	74	71	75	3.74	− 0.2	11	5,910	sw.	33	ne.	19	13	13	5	4.3			
Brownsville	57	3	40	.....	.....	.....	81.4	.....	96	20	89	69	10	73	25	....	....	....	0.28	.....	3	.....	se.	30	....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corpus Christi	20	69	77	30.01	30.03	+ .07	81.4	− 1.3	94	20	87	72	20	76	22	76	74	82	1.18	− 0.5	3	9,972	se.	39	se.	11	19	12	0	2.8			
Fort Worth	670	106	114	29.28	29.97	+ .01	85.1	+ 1.4	106	10	96	65	24	74	38	71	65	58	4.36	+ 1.3	6	7,879	s.	48	sw.	26	16	12	3	4.0			
Galveston	54	106	114	30.00	30.06	+ .08	83.2	+ 0.2	99	20	88	75	20	78	24	76	74	77	1.48	− 2.5	6	8,036	s.	36	e.	8	25	5	1	2.2			
Houston	138	111	121	29.90	30.04	.....	84.0	+ 1.0	101	20	94	72	21	75	27	....	....	....	1.37	.....	5	5,561	s.	31	ne.	20	20	9	2	3.3			
Palestine	510	64	72	29.50	30.02	+ .05	83.7	+ 2.2	99	8	94	67	21	73	29	73	69	69	0.71	− 2.3	2	5,365	s.	32	n.	20	24	7	0	2.0			
San Antonio	701	80	91	29.29	30.00	+ .05	84.5	+ 2.1	101	20	95	71	19	74	28	72	67	64	0.03	− 2.2	1	4,698	s.	24	ne.	20	28	3	0	1.8			
Taylor	583	55	63	29.43	30.04	+ .08	84.6	+ 1.9	102	20	96	70	17	73	29	....	....	....	0.01	− 2.6	1	7,029	s.	28	n.	20	19	11	1	3.2			
Ohio Valley and Tennessee.							**78.4**	**+ 1.6**												**68**	**3.83**	**− 0.2**									**4.6**		
Chattanooga	762	189	213	29.27	30.06	+ .04	80.8	+ 3.0	98	18	90	65	12	71	26	71	66	68	4.40	+ 0.5	9	5,369	sw.	28	sw.	11	7	14	10	5.6			
Knoxville	996	93	100	29.01	30.04	+ .02	80.1	+ 3.9	100	18	90	62	8	70	25	70	67	69	3.77	− 0.4	12	3,482	sw.	24	n.	19	5	19	7	5.7			
Memphis	399	76	97	29.64	30.06	+ .06	81.0	+ 0.3	95	6	88	69	12	74	21	73	70	73	5.91	+ 2.4	9	5,545	sw.	38	nw.	8	17	4	10	4.4			
Nashville	546	168	191	29.48	30.05	+ .04	81.5	+ 2.1	98	18	91	63	22	72	30	71	67	68	4.09	− 0.3	6	5,410	w.	35	sw.	1	11	8	12	5.2			
Lexington	989	75	102	28.99	30.03	+ .02	78.2	+ 1.6	99	30	88	58	21	68	27	....	....	....	2.43	− 2.0	10	6,227	sw.	51	w.	19	12	16	3	4.4			

TABLE I.—*Climatological data for United States Weather Bureau stations, July, 1913*—Continued.

Districts and stations.	Elevation of instruments.			Pressure in inches.			Temperature of the air, in degrees Fahrenheit.									Mean wet thermometer.	Mean temperature of the dew point.	Mean relative humidity, per cent.	Precipitation, inches.			Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.				Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.						
***Ohio Valley and Tennessee*—Continued.**							**78.4**	**+ 1.6**										**68**	**3.83**	**− 0.2**									**4.6**		
Louisville	525	219	255	29.45	30.02	+ .02	81.4	+ 2.8	104	18	91	59	25	71	26	70	64	60	1.48	− 2.3	7	7,778	sw.	54	nw.	19	16	12	3	4.1		
Evansville	431	72	82	29.54	30.00	.00	81.4	+ 2.1	102	18	91	62	21	72	26	71	67	66	1.35	− 2.5	6	5,518	sw.	38	sw.	11	14	15	2	3.9		
Indianapolis	822	154	164	29.13	30.00	+ .01	77.9	+ 1.7	102	30	88	54	25	68	29	68	63	66	3.88	− 0.2	12	6,701	sw.	49	se.	31	8	21	2	5.1		
Terre Haute	575	96	129	29.38	29.98	.....	79.8	.....	101	17	91	54	25	68	30	69	63	62	0.91	.....	8	6,451	sw.	29	ne.	8	6	22	3	5.1		
Cincinnati	628	152	160	29.35	30.01	+ .01	80.0	+ 2.3	101	30	90	60	25	70	27	70	65	65	2.37	− 1.2	11	4,822	w.	33	nw.	9	10	17	4	4.6		
Columbus	824	173	222	29.15	30.00	.00	76.5	+ 1.2	97	30	88	54	7	66	30	67	63	67	2.88	− 0.8	10	7,386	sw.	46	nw.	9	17	13	1	2.9		
Dayton	899	181	216	29.06	29.98	.....	76.6	+ 0.4	99	30	87	55	25	66	29	68	63	66	2.90	− 0.4	11	7,076	sw.	54	nw.	14	16	13	2	3.8		
Pittsburgh	842	353	410	29.11	29.99	− .01	73.6	− 1.0	93	1	83	54	11	64	29	65	61	69	4.86	+ 0.4	12	7,026	sw.	44	nw.	6	14	10	7	4.3		
Elkins	1,940	41	50	28.04	30.02	+ .01	71.4	+ 0.9	94	1	83	46	5	59	34	65	63	82	8.67	+ 4.0	18	2,296	w.	19	ne.	30	7	16	8	5.6		
Parkersburg	638	77	84	29.38	30.03	+ .02	77.0	+ 1.4	99	1	88	57	22	66	29	70	67	77	4.64	0.0	12	3,519	s.	35	nw.	12	19	8	4	3.6		
Lower Lake Region.							**71.4**	**− 0.3**										**67**	**2.48**	**− 0.9**									**4.1**		
Buffalo	767	247	280	29.15	29.96	− .01	69.2	− 1.0	93	31	76	52	7	62	25	63	59	70	1.03	− 2.4	10	10,937	sw.	66	sw.	12	14	12	5	4.1		
Canton	448	10	61	29.45	29.91	.....	68.2	− 2.3	95	4	80	47	8	56	38	.....	.....	.....	2.13	− 1.1	15	7,418	sw.	42	sw.	6	8	12	11	5.7		
Oswego	335	76	91	29.57	29.93	− .93	68.8	− 0.8	95	4	77	51	12	61	32	62	58	72	2.33	− 0.9	11	6,329	nw.	28	w.	12	15	10	6	4.1		
Rochester	523	86	102	29.40	29.96	− .01	71.0	+ 0.6	95	4	81	50	11	61	29	62	56	63	2.08	− 1.0	10	6,086	w.	39	w.	13	16	11	4	3.9		
Syracuse	597	97	113	29.33	29.96	− .01	70.4	− 0.4	93	4	80	52	11	61	31	62	56	62	0.95	− 2.7	5	8,350	nw.	54	sw.	23	17	9	5	4.0		
Erie	714	92	102	29.23	29.98	.00	70.4	− 1.4	87	4	77	51	11	64	22	64	61	71	1.36	− 1.8	12	6,512	w.	35	nw.	6	11	17	3	4.1		
Cleveland	762	190	201	29.18	29.99	.00	71.8	− 0.7	90	3	79	50	11	64	25	65	60	68	4.85	+ 1.3	12	8,362	se.	66	nw.	27	7	20	4	4.9		
Sandusky	629	62	70	29.32	29.99	.00	73.8	+ 0.2	95	4	82	54	11	66	29	66	61	67	2.19	− 1.6	14	5,495	sw.	36	nw.	5	8	18	5	4.9		
Toledo	628	208	246	29.32	29.99	.00	74.2	+ 0.5	94	4	84	52	7	65	25	65	60	65	3.38	+ 0.1	14	9,038	sw.	55	sw.	13	24	6	1	2.6		
Fort Wayne	856	113	124	29.09	29.99	.....	75.1	+ 1.6	95	30	86	53	7	64	30	66	62	68	3.65	.....	11	6,151	nw.	37	s.	8	23	7	1	2.2		
Detroit	730	218	258	29.21	29.99	+ .01	72.9	+ 0.9	95	4	82	50	7	64	27	64	59	67	4.48	+ 1.0	12	7,913	n.	48	w.	5	12	17	2	4.4		
Upper Lake Region.							**67.1**	**+ 1.0**										**70**	**3.73**	**+ 0.6**									**4.7**		
Alpena	609	13	92	29.30	29.97	.00	65.4	− 0.4	95	3	76	44	25	55	31	60	56	73	1.90	− 1.2	9	8,199	nw.	52	sw.	27	7	21	3	4.9		
Escanaba	612	54	60	29.30	29.96	− .01	64.3	− 2.2	88	1	73	44	21	56	25	59	55	72	4.87	+ 1.5	15	6,401	s.	33	nw.	3	12	11	8	4.8		
Grand Haven	632	54	92	29.30	29.96	− .02	69.1	− 0.6	94	30	78	49	25	61	34	63	58	70	1.57	− 1.0	9	7,837	nw.	36	s.	12	18	10	3	3.2		
Grand Rapids	707	70	87	29.22	29.97	− .01	72.8	+ 0.2	96	30	83	50	25	62	30	63	58	61	1.96	− 0.7	9	4,621	w.	30	w.	12	13	14	4	4.1		
Houghton	684	62	72	29.21	29.93	− .03	62.1	− 3.2	84	3	71	46	10	53	27	.....	.....	.....	3.23	+ 0.1	12	6,671	w.	48	w.	31	8	15	8	5.3		
Lansing	878	11	62	29.05	29.97	.....	70.8	− 0.3	94	3	83	44	7	58	34	63	59	70	2.85	− 0.4	10	3,690	nw.	25	nw.	6	11	15	5	4.3		
Ludington	637	60	66	29.28	29.97	.....	66.2	.....	90	30	75	47	11	58	30	60	57	73	4.32	.....	14	6,973	s.	40	s.	8	13	13	5	4.1		
Marquette	734	77	111	29.18	29.97	+ .01	63.1	− 1.8	91	3	72	46	6	54	30	57	52	67	3.71	+ 0.6	16	7,333	nw.	42	sw.	3	15	7	9	4.7		
Port Huron	638	70	120	29.29	29.98	.00	69.0	0.0	91	29	79	48	11	59	29	62	58	71	4.30	+ 1.6	10	6,809	ne.	39	nw.	6	11	18	2	4.2		
Saginaw	641	62	64	29.28	29.97	.....	70.2	.....	94	3	81	46	7	59	31	62	57	66	4.75	+ 1.0	8	4,398	sw.	29	.....	13	11	15	5	4.7		
Sault Ste. Marie	614	11	61	29.27	29.96	− .01	61.4	− 0.5	86	3	72	44	11	51	31	56	53	77	5.04	+ 2.3	11	6,612	w.	39	nw.	6	9	14	8	5.5		
Chicago	823	140	310	29.13	29.99	+ .01	74.9	+ 2.5	99	29	82	59	21	67	29	66	62	67	3.30	− 0.3	8	8,489	ne.	47	ne.	8	19	6	6	3.6		
Green Bay	617	109	144	29.29	29.95	− .02	68.8	− 0.7	90	3	78	50	21	60	28	63	60	74	4.91	+ 1.4	14	7,572	sw.	50	nw.	5	4	12	15	7.0		
Milwaukee	681	119	133	29.25	29.98	+ .01	70.0	+ 0.3	93	27	79	54	21	61	30	62	58	69	3.59	+ 0.6	11	6,570	ne.	39	e.	5	16	11	4	3.6		
Duluth	1,133	11	47	28.76	29.96	+ .01	60.4	− 5.6	82	8	69	43	11	52	25	56	53	77	6.18	+ 2.5	16	8,918	ne.	36	w.	5	5	12	14	6.2		
North Dakota.							**66.2**	**− 2.9**										**68**	**2.47**	**− 0.4**									**4.0**		
Moorhead	940	8	57	28.96	29.96	+ .02	67.0	− 1.7	94	29	79	46	24	55	37	61	57	74	3.26	− 0.5	12	5,148	nw.	42	nw.	29	20	9	2	2.8		
Bismarck	1,674	8	57	28.22	29.98	+ .05	67.6	− 2.6	98	29	81	46	13	54	44	60	56	68	2.72	+ 0.6	7	7,260	nw.	43	w.	11	15	13	3	3.9		
Devils Lake	1,482	11	44	28.38	29.93	.00	64.2	− 3.9	95	29	76	44	20	53	38	58	53	69	1.47	− 2.3	12	7,836	w.	40	w.	8	13	9	5	5.1		
Williston	1,872	40	47	27.99	29.93	+ .01	65.8	− 3.6	92	29	79	42	27	53	39	56	49	60	2.43	+ 0.4	5	6,215	n.	41	nw.	29	16	10	5	4.4		
Upper Mississippi Valley.							**76.7**	**− 1.3**										**65**	**3.07**	**− 0.6**									**4.2**		
Minneapolis	918	102	208	.....	.....	.....	70.4	.....	97	30	80	53	24	61	30	.....	.....	.....	7.75	+ 3.9	15	8,285	w.	50	w.	31	11	12	8	5.1		
St. Paul	837	201	236	29.06	29.95	.00	69.9	− 2.2	96	30	80	53	11	60	30	62	58	69	6.11	+ 2.7	15	9,108	nw.	58	w.	31	14	12	5	4.4		
La Crosse	714	11	48	29.19	29.94	− .02	71.8	− 0.8	95	30	83	53	25	61	28	.....	.....	.....	5.71	+ 1.6	14	3,405	s.	30	nw.	4	9	15	7	5.0		
Madison	974	70	78	28.95	29.97	.00	71.4	− 1.0	94	30	81	50	11	62	28	65	62	74	8.47	+ 4.5	14	6,144	sw.	41	ne.	8	15	11	5	4.2		
Charles City	1,015	10	49	28.91	29.96	.00	72.5	− 1.0	100	30	85	50	21	60	33	65	61	69	2.82	− 0.8	11	4,668	se.	30	w.	12	7	18	6	5.2		
Davenport	606	71	79	29.32	29.96	− .01	78.1	+ 2.7	102	29	89	54	11	67	33	68	62	60	0.18	− 3.4	4	5,280	sw.	27	w.	12	19	9	3	3.5		
Des Moines	861	84	97	29.05	29.94	− .02	78.2	+ 2.7	101	29	89	56	21	68	30	67	62	60	1.05	− 2.8	5	5,443	sw.	32	sw.	8	18	9	4	3.3		
Dubuque	698	81	96	29.24	29.97	.00	75.0	+ 0.3	100	30	86	55	11	65	31	66	62	65	2.31	− 2.0	7	4,712	s.	24	se.	8	14	12	5	4.4		
Keokuk	614	64	78	29.32	29.98	.00	79.6	+ 2.6	102	29	90	58	25	70	31	69	64	61	0.09	− 3.9	4	5,365	s.	27	sw.	12	19	10	2	3.0		
Cairo	356	87	93	29.63	30.00	.00	80.4	+ 1.8	99	18	89	65	22	72	27	73	70	75	4.19	+ 0.7	9	5,408	sw.	32	sw.	1	7	17	7	5.5		
La Salle	536	56	64	29.44	30.00	+ .03	76.8	+ 1.5	103	30	89	49	11	65	39	.....	.....	.....	1.42	− 1.8	7	5,112	sw.	42	ne.	8	13	16	2	4.0		
Peoria	609	11	45	29.34	29.99	+ .01	78.5	+ 3.1	103	29	90	52	21	66	36	68	63	63	0.46	− 2.5	6	4,573	s.	28	w.	12	18	11	2	3.3		
Springfield, Ill	644	10	91	29.31	29.98	.00	80.0	+ 3.5	103	29	91	56	25	69	34	69	63	60	1.66	− 1.2	6	5,548	sw.	30	e.	15	15	13	3	4.1		
Hannibal	534	74	109	29.41	29.97	− .01	80.6	+ 3.2	102	17	91	58	22	70	30	.....	.....	.....	0.27	− 3.5	5	6,497	sw.	29	sw.	14	16	11	4	4.2		
St. Louis	567	208	217	29.40	29.99	.00	80.8	+ 1.7	102	18	90	64	25	72	23	70	65	63	3.61	+ 0.2	8	6,829	s.	44	s.	14	12	14	5	4.5		
Missouri Valley.							**77.9**	**+ 2.1**										**59**	**2.70**	**− 1.1**									**3.3**		
Columbia, Mo	784	11	84	29.18	29.99	+ .01	80.1	+ 2.7	100	29	91	59	22	70	31	.....	.....	.....	3.38	− 0.3	10	4,920	s.	37	nw.	11	11	14	6	5.0		
Kansas City	963	161	181	28.94	29.94	− .03	81.6	+ 4.0	103	15	92	62	19	72	27	68	62	57	3.86	− 1.0	7	8,042	s.	57	nw.	11	18	12	1	3.4		
St. Joseph	967	11	49	29.94	29.94	.....	81.6	.....	104	15	92	61	21	71	31	68	62	57	1.61	.....	4	5,727	s.	39	n.	7	19	9	3	3.3		
Springfield, Mo	1,324	98	104	28.63	30.01	+ .03	79.2	+ 2.8	98	18	89	63	2	70	26	69	65	67	3.84	− 1.0	9	6,728	s.	41	nw.	11	17	12	2	3.0		
Iola	984	11	50	28.95	29.96	− .01	81.6	+ 3.5	102	18	94	57	21	69	37	.....	.....	.....	2.30	− 1.6	8	4,829	s.	22	nw.	11	18	12	1	3.0		
Topeka	983	85	101	.....	.....	.....	81.8	+ 4.2	104	16	93	61	21	70	31	.....	.....	.....	1.57	− 3.3	4	7,317	s.	35	s.	14	20	10	1	2.4		
Lincoln	1,189	11	84	28.69	29.92	− .03	81.0	+ 4.6	109	16	94	54	21	68	34	66	59	54	1.95	− 1.9	10	7,850	s.	39	w.	28	22	6	3	2.9		
Omaha	1,105	115	121	28.78	29.93	− .02	79.8	+ 3.3	104	16	91	61	12	69	31	67	61	58	1.92	− 2.4	8	5,803	s.	31	nw.	22	20	9	2	3.3		
Valentine	2,598	47	54	27.31	29.98	+ .05	72.0	− 1.2	98	7	85	44	31	59	39	61	54	60	3.94	+ 0.5	10	7,158	ne.	52	nw.	15	21	8	2	2.8		
Sioux City	1,135	94	164	28.75	29.93	− .02	76.6	+ 2.4	100	30	88	54	21	65	36	66	60	61	1.92	− 1.7	8	8,503	s.	44	nw.	4	23	7	1	2.5		
Huron	1,306	56	67	28.59	29.96	+ .02	71.0	− 0.5	99	29	84	50	31	58	38	63	58	68	3.82	+ 0.9	11	6,778	n.	44	nw.	8	16	13	2	3.3		
Pierre	1,572	70	75	28.33	29.96	+ .02	74.8	− 0.4	102	29	87	56	13	63	36	61	52	52	2.12	− 0.2	6	7,862	e.	44	sw.	10	17	9	5	3.9		
Yankton	1,233	49	57	28.63	29.92	− .02	74.8	+ 0.2	98	26	87	50	24	63	36	.....	.....	.....	1.82	− 1.7	9	5,058	e.	26	s.	25	12	17	2	4.4		
Northern Slope.							**66.2**	**− 1.9**										**56**	**1.49**	**− 0.1**									**4.1**		
Havre	2,505	11	44	27.36	29.96	+ .05	65.3	− 2.8	94	9	79	40	27	52	41	56	50	63	1.28	− 0.6	9	5,806	sw.	32	sw.	9	18	10	3	3.7		
Helena	4,110	87	114	25.86	29.98	+ .05	64.4	− 2.2	92	6	77	43	14	52	37	52	43	50	1.47	+ 0.4	11	6,462	sw.	40	w.	13	13	12	6	4.3		
Kalispel	2,962	11	34	26.96	29.98	+ .05	61.8	− 2.5	91	20	76	36	30	47	40	51	44	60	0.38	− 0.5	5	3,579	w.	22	sw.	13	15	12	4	3.9		
Miles City	2,371	26	48	27.48	29.97	+ .05	72.0	− 0.9	102	9	86	49	31	58	45	61	54	58	0.71	− 0.7	9	4,304	ne.	40	w.	29	19	12	0	2.8		
Rapid City	3,234	46	50	26.65	29.99	+ .06	68.8	− 1.4	97	7	81	46	12	56	47	58	50	54	0.62	− 1.9	7	5,353	w.	30	sw.	10	13	11	7	4.8		

TABLE I.—*Climatological data for United States Weather Bureau stations, July, 1913*—Continued.

District and stations.	Elevation of instruments.			Pressure in inches.			Temperature of the air, in degrees Fahrenheit.										Mean wet thermometer.	Mean temperature of the dew point.	Mean relative humidity, per cent.	Precipitation, inches.			Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.					Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.						
***Northern Slope*—Con.**							**66.2**	**— 1.9**											**56**	**1.49**	**— 0.1**									**4.1**		
Cheyenne	6,088	58	64	24.14	29.98	+ .06	65.2	— 2.2	92	13	79	43	31	51	40		53	45	55	1.42	— 0.6	12	6,331	nw.	40	nw.	30	10	14	7	4.5	.....	.....
Lander	5,372	60	68	24.73	29.97	+ .05	66.4	— 1.6	94	9	82	40	31	51	46		53	43	52	1.03	+ 0.2	7	4,442	sw.	52	sw.	29	11	15	5	4.9	.....	.....
Sheridan	3,790	10	47	26.16	36.00	.....	64.9	.....	95	7	80	40	31	50	49		55	48	60	1.70	.....	12	4,096	se.	37	nw.	10	12	13	6	4.8	.....	.....
Yellowstone Park	6,200	11	48	23.99	30.01	+ .09	57.2	— 4.3	83	6	70	32	14	45	38		47	40	60	3.14	+ 2.0	15	5,668	sw.	41	s.	13	10	12	9	5.0	.....	.....
North Platte	2,821	11	51	27.10	29.97	+ .04	74.4	+ 0.5	100	15	88	47	12	60	43		63	57	60	3.37	+ 0.7	9	5,087	se.	37	nw.	6	26	2	3	2.2	.....	.....
Middle Slope.							**79.0**	**+ 2.2**											**52**	**2.01**	**+ 1.0**									**3.8**		
Denver	5,291	129	172	24.83	29.98	+ .07	71.6	— 0.2	99	13	85	50	28	58	41		56	47	51	1.76	+ 0.1	11	5,798	sw.	41	ne.	30	12	13	6	4.4	.....	.....
Pueblo	4,685	80	86	25.36	29.94	+ .03	74.7	+ 0.5	101	13	89	51	28	61	44		57	47	48	3.12	+ 1.2	9	4,703	nw.	48	nw.	6	17	10	4	3.7	.....	.....
Concordia	1,398	42	50	28.49	29.91	— .04	83.2	+ 5.1	110	14	97	55	21	70	36		66	57	47	0.15	— 3.5	4	6,051	s.	25	s.	13	9	21	1	4.5	.....	.....
Dodge City	2,509	11	51	27.40	29.93	.00	80.7	+ 3.0	105	8	94	61	21	68	34		65	57	52	0.70	— 2.7	8	9,243	s.	42	s.	4	19	11	1	3.4	.....	.....
Wichita	1,358	139	158	28.54	29.92	— .04	82.4	+ 3.0	102	8	93	62	21	71	30		68	60	54	1.28	— 2.3	9	9,982	s.	44	s.	13	20	10	1	3.1	.....	.....
Oklahoma	1,214	10	47	28.71	29.96	.00	81.7	+ 1.9	103	31	93	60	22	71	34		70	65	62	5.06	+ 1.4	1	9,230	s.	33	s.	13	15	9	7	4.0	.....	.....
Southern Slope.							**81.5**	**+ 1.0**											**49**	**1.21**	**— 1.6**									**3.0**		
Abilene	1,738	10	52	28.21	29.96	+ .03	84.3	+ 2.1	102	10	96	66	21	72	30		68	59	48	0.72	— 1.7	5	7,898	s.	35	sw.	14	17	13	1	3.4	.....	.....
Amarillo	3,676	10	49	26.32	29.96	+ .04	78.7	+ 2.6	101	14	92	58	21	65	34		63	54	52	1.80	— 1.4	7	9,493	s.	36	sw.	28	26	5	0	2.8	.....	.....
Del Rio	944	8	57	28.99	29.96	+ .06	84.5	— 0.2	99	20	95	66	26	74	27		.....	.....	.....	1.52	— 0.7	1	6,558	se.	26	ne.	26	22	6	3	2.7	.....	.....
Roswell	3,566	9	57	26.36	29.88	.00	78.4	— 0.5	103	11	93	58	27	64	38		62	52	48	0.82	— 2.6	4	5,606	s.	64	w.	14	16	14	1	3.3	.....	.....
Southern Plateau.							**77.3**	**— 1.7**											**42**	**0.98**	**— 0.3**									**3.3**		
El Paso	3,762	110	133	26.19	29.84	.00	81.5	+ 1.0	104	11	94	61	21	69	32		61	47	37	1.13	— 1.0	5	7,426	e.	46	ne.	18	19	10	2	3.2	.....	.....
Santa Fe	7,013	57	62	23.39	29.89	+ 0.1	69.6	+ 0.9	90	11	82	52	30	58	30		54	43	47	1.12	— 1.6	9	5,225	se.	33	s.	15	9	21	1	4.3	.....	.....
Flagstaff	6,907	8	57	.....	.....	.....	62.8	— 2.2	90	11	78	36	27	48	48		.....	.....	.....	2.35	.....	9	.....	sw.	37	sw.	26	14	14	3	.....	.....	.....
Phoenix	1,108	76	81	28.70	29.82	+ .04	86.3	— 4.1	110	5	100	65	27	73	37		66	53	38	0.94	— 0.1	6	4,401	e.	34	ne.	20	15	8	8	4.3	.....	.....
Yuma	141	9	58	29.67	29.81	+ .05	88.2	— 2.7	115	10	104	61	27	73	44		69	59	45	0.17	0.0	2	4,930	s.	35	n.	17	27	4	0	1.1	.....	.....
Independence	3,910	11	42	26.00	29.91	+ .08	75.3	— 3.2	103	10	90	51	25	61	41		58	45	43	1.56	+ 1.4	6	3,936	nw.	26	s.	28	16	11	4	3.5	.....	.....
Middle Plateau.							**70.7**	**— 1.4**											**45**	**1.09**	**+ 0.4**									**3.9**		
Reno	4,532	74	81	25.51	29.93	+ .06	68.6	+ 1.1	98	5	84	43	15	53	45		53	43	52	1.75	+ 1.6	10	5,278	w.	42	w.	3	16	10	5	3.3	.....	.....
Tonopah	6,090	12	20	24.13	29.93	+ .06	70.2	.....	92	12	82	48	26	58	32		52	38	38	0.16	— 0.2	5	5,996	se.	36	se.	20	13	16	2	3.8	.....	.....
Winnemucca	4,344	18	56	25.64	29.96	+ .06	69.2	— 2.4	96	5	85	42	14	53	49		54	44	53	1.55	+ 1.4	10	4,078	sw.	36	s.	24	17	4	10	4.0	.....	.....
Modena	5,479	10	43	24.68	29.91	+ .05	69.8	+ 0.1	95	10	84	44	26	55	50		52	37	39	0.81	— 0.4	4	8,670	sw.	45	sw.	21	14	13	4	4.0	.....	.....
Salt Lake City	4,360	147	189	25.64	29.92	+ .02	73.5	— 2.7	97	6	85	54	12	62	34		58	48	45	0.55	0.0	8	5,659	s.	44	nw.	3	15	14	2	3.6	.....	.....
Durango	6,546	18	56	23.78	29.95	+ .06	66.9	— 1.8	94	5	84	39	28	50	46		50	40	51	2.47	+ 0.9	14	4,174	nw.	28	se.	13	10	18	3	4.5	.....	.....
Grand Junction	4,602	43	51	25.41	29.92	+ .03	76.4	— 2.8	100	6	90	56	30	62	36		56	42	38	0.31	— 0.2	6	4,259	se.	29	sw.	25	15	12	4	3.8	.....	.....
Northern Plateau.							**69.3**	**— 1.6**											**52**	**0.87**	**+ 0.4**									**3.8**		
Baker	3,471	48	53	26.50	30.04	+ .09	63.5	— 1.5	91	8	77	36	14	50	41		52	44	56	0.47	0.0	5	4,249	s.	20	se.	23	18	10	3	3.2	.....	.....
Boise	2,739	78	86	27.16	29.98	+ .05	70.2	— 2.6	98	6	83	42	14	58	37		56	45	49	2.01	+ 1.8	7	3,930	nw.	30	nw.	1	16	8	7	3.8	.....	.....
Lewiston	757	40	48	29.17	29.97	+ .02	72.9	— 0.7	105	20	87	47	14	58	42		.....	.....	.....	0.10	— 0.3	2	2,820	e.	27	w.	6	19	10	2	3.0	.....	.....
Pocatello	4,477	46	54	25.53	29.97	+ .05	67.3	— 3.9	91	8	80	42	14	54	40		54	46	54	2.23	+ 1.6	10	5,455	se.	30	sw.	2	10	13	8	4.9	.....	.....
Spokane	1,929	101	110	27.97	29.99	+ .03	67.8	— 1.0	95	20	81	43	14	55	36		54	44	49	0.37	— 0.3	8	4,885	ne.	36	w.	28	15	10	6	4.2	.....	.....
Walla Walla	1,000	107	115	.....	29.97	.00	73.9	— 0.2	105	20	87	51	13	61	37		.....	.....	.....	0.04	— 0.4	2	5,532	sw.	36	sw.	13	22	6	3	.....	.....	.....
North Pacific Coast Region.							**61.9**	**+ 0.7**											**76**	**1.02**	**+ 0.3**									**4.9**		
North Head	211	11	56	29.88	30.10	+ .02	58.5	+ 0.8	80	31	62	51	31	55	29		55	53	84	1.03	+ 0.5	8	10,044	nw.	54	s.	6	10	14	7	5.3	.....	.....
Port Crescent	259	8	53	29.83	30.10	+ .04	56.2	— 0.1	86	19	66	38	29	47	39		.....	.....	.....	0.85	+ 0.2	6	3,409	w.	14	e.	20	11	17	3	4.6	.....	.....
Seattle	125	215	250	29.96	30.09	+ .05	63.4	— 0.1	87	22	72	48	13	55	28		58	54	76	0.73	0.0	6	5,667	n.	35	s.	6	11	10	10	5.0	.....	.....
Tacoma	213	113	120	29.86	30.08	+ .02	63.1	— 0.3	89	22	73	47	13	54	30		57	52	72	0.55	— 0.1	5	4,314	n.	24	sw.	6	10	15	6	5.3	.....	.....
Tatoosh Island	86	7	57	29.99	30.08	+ .03	57.1	+ 2.0	73	20	62	50	21	52	21		55	54	92	3.11	+ 1.3	12	7,870	sw.	60	sw.	6	10	14	7	5.3	.....	.....
Portland, Oreg.	153	68	106	29.90	30.06	+ .01	67.8	+ 1.5	98	31	78	51	11	58	35		60	55	67	0.24	— 0.3	2	4,197	nw.	23	w.	6	11	13	7	4.6	.....	.....
Roseburg	510	9	57	29.51	30.05	+ .02	67.5	+ 1.4	99	31	80	47	16	55	46		59	53	67	0.61	+ 0.3	5	2,338	n.	16	n.	29	10	18	3	4.2	.....	.....
Middle Pacific Coast Region.							**66.2**	**+ 0.7**											**59**	**0.08**	**+ 0.1**									**3.5**		
Eureka	62	73	89	30.01	30.08	+ .03	57.2	+ 1.9	69	9	61	49	19	53	17		55	53	88	0.28	+ 0.2	9	5,297	n.	30	n.	13	6	17	8	5.6	.....	.....
Mount Tamalpais	2,375	11	18	27.55	29.98	+ .03	67.2	— 3.3	96	11	75	49	28	59	23		53	41	45	0.09	+ 0.1	2	11,232	nw.	72	nw.	2	24	5	2	1.8	.....	.....
Point Reyes Light	490	7	18	29.44	29.96	.....	55.2	+ 1.5	68	31	59	48	18	51	15		.....	.....	.....	0.16	.....	4	16,744	nw.	75	nw.	1	10	7	14	5.7	.....	.....
Red Bluff	332	50	56	29.54	29.89	.00	80.8	— 1.3	105	12	94	61	25	68	35		61	46	35	T.	0	0	4,262	se.	27	n.	13	20	7	4	2.8	.....	.....
Sacramento	69	106	117	29.83	29.90	+ .02	74.4	+ 1.9	104	11	89	54	15	60	37		60	50	51	T.	0	0	7,162	s.	27	sw.	24	27	3	1	1.3	.....	.....
San Francisco	155	200	204	29.81	29.98	+ .03	60.6	+ 3.3	90	11	67	50	14	54	28		55	51	78	0.07	+ 0.1	2	8,182	w.	35	sw.	17	16	9	6	3.6	.....	.....
San Jose	141	12	110	29.83	29.98	.....	68.1	+ 1.2	103	11	82	46	2	55	45		.....	.....	.....	0.09	+ 0.1	2	4,903	nw.	24	nw.	2	24	6	1	1.8	.....	.....
Southeast Farallon	30	9	17	29.98	30.01	.....	55.3	.....	67	25	58	48	18	53	10		.....	.....	.....	0.06	0.0	2	10,925	nw.	48	nw.	1	9	10	12	5.6	.....	.....
South Pacific Coast Region.							**71.4**	**+ 1.6**											**65**	**0.10**	**+ 0.1**									**3.3**		
Fresno	327	89	98	29.54	29.88	+ .05	80.9	— 1.1	109	12	96	58	15	66	38		61	46	37	0.33	+ 0.3	1	6,575	nw.	29	nw.	9	24	5	2	2.1	.....	.....
Los Angeles	338	159	191	29.60	29.95	+ .05	70.5	+ 3.1	89	10	79	58	30	62	26		63	59	74	T.	0.0	0	3,957	sw.	17	sw.	25	13	15	3	4.0	.....	.....
San Diego	87	62	70	29.86	29.95	+ .03	68.2	+ 1.3	78	7	73	60	25	64	15		63	60	80	0.06	+ 0.1	2	4,932	w.	20	w.	21	20	11	0	3.1	.....	.....
San Luis Obispo	201	47	54	29.78	29.99	+ .04	66.2	+ 3.0	96	9	78	49	15	55	44		57	53	69	T.	0.0	0	3,680	nw.	20	nw.	26	18	10	3	3.3	.....	.....
West Indies.																																	
San Juan	82	8	54	29.97	30.06	+ .07	78.8	.....	90	19	84	71	2	74	16		.....	.....	.....	2.64	— 3.8	18	10,430	e.	34	e.	16	6	15	10	5.7	.....	.....
Panama.																																	
Ancon	92	6	69	29.74	29.83	.....	81.1	.....	93	21	89	71	2	73	20		76	75	90	4.85	— 3.1	22	5,159	nw.	21	n.	24	7	22	2	5.2	.....	.....
Culebra	404	5	62	29.43	29.84	.....	80.1	.....	90	24	87	71	4	73	18		75	74	91	5.52	— 3.8	22	5,313	nw.	25	n.	19	0	8	23	8.4	.....	.....
Colon	10	5	71	29.86	29.87	.....	80.6	.....	88	17	84	73	8	77	14		77	76	87	15.13	— 1.2	24	7,281	ne.	29	ne.	12	4	12	15	7.0	.....	.....

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during July, 1913, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex.	2			0.23																	
Albany, N. Y.	28	11.08 a. m.	12.30 p. m.	0.60	11.08 a. m.	11.33 a. m.	.00	.09	.29	.39	.43	.51						.23			
Alpena, Mich.	4	7.07 a. m.	8.25 a. m.	0.81	7.12 a. m.	7.30 a. m.	.01	.22	.43	.62	.71										
Amarillo, Tex.	25	7.12 p. m.	10.10 p. m.	0.82	7.26 p. m.	7.48 p. m.	.01	.19	.27	.51	.70	.73									
Anniston, Ala.	13	1.17 p. m.	2.45 p. m.	0.91	1.35 p. m.	1.56 p. m.	.02	.24	.46	.71	.80	.84									
	20	5.20 p. m.	6.25 p. m.	0.76	5.24 p. m.	5.37 p. m.	.01	.31	.62	.73											
Asheville, N. C.	31	2.14 p. m.	3.05 p. m.	0.89	2.23 p. m.	2.51 p. m.	.01	.15	.25	.34	.63	.81	.88								
Atlanta, Ga.	4	3.55 p. m.	7.05 p. m.	0.57	5.01 p. m.	5.15 p. m.	.04	.21	.40	.47											
	26	4.05 p. m.	6.17 p. m.	0.51	4.30 p. m.	4.44 p. m.	.01	.24	.41	.47											
	31	3.20 p. m.	4.38 p. m.	0.95	3.25 p. m.	3.54 p. m.	.01	.13	.33	.48	.61	.75	.82								
Atlantic City, N. J.	18			0.50														.45			
Augusta, Ga.	26	4.20 p. m.	5.45 p. m.	1.28	4.48 p. m.	5.17 p. m.	.06	.08	.19	.41	.68	.95	1.12								
	27	4.40 p. m.	7.10 p. m.	0.96	4.56 p. m.	5.14 p. m.	.02	.43	.66	.78	.86										
	31	10.30 p. m.	D. N. a. m.	1.35	10.42 p. m.	11.15 p. m.	.03	.29	.74	.96	1.06	1.14	1.20	1.25							
Baker, Oreg.	21			0.17														.09			
Baltimore, Md.	28	4.16 p. m.	5.54 p. m.	0.66	5.12 p. m.	5.27 p. m.	.09	.23	.38	.53											
Bentonville, Ark.	11	9.25 p. m.	10.55 p. m.	1.25	9.41 p. m.	10.24 p. m.	.01	.14	.17	.42	.68	.73	.85	1.05	1.11	1.15					
	24	1.20 a. m.	9.00 a. m.	2.04	4.45 a. m.	5.52 a. m.	.12	.23	.34	.48	.59	.65	.76	.90	.93	.95	.98	1.20	1.45		
Binghamton, N. Y.	24			0.73														.30†			
Birmingham, Ala.	22	4.44 p. m.	5.28 p. m.	0.59	5.03 p. m.	5.17 p. m.	.03	.26	.45	.56											
	29	4.46 p. m.	8.09 p. m.	0.98	5.01 p. m.	5.27 p. m.	.01	.23	.38	.64	.76	.85	.89								
Bismarck, N. Dak.	17	D. N. a. m.	D. N. a. m.	1.39	2.55 a. m.	3.22 a. m.	.04	.21	.48	.88	1.06	1.13	1.17								
Block Island, R. I.	24			0.30														.25			
Boise, Idaho	25			0.50														.30			
Boston, Mass.	30	1.26 p. m.	2.03 p. m.	0.91	1.28 p. m.	1.53 p. m.	T.	.13	.42	.56	.76	.91									
Buffalo, N. Y.	24			0.30														.19			
Burlington, Vt.	28			1.05														.60			
Cairo, Ill.	11–12	11.30 p. m.	3.15 a. m.	1.17	11.48 p. m.	12.11 a. m.	.03	.06	.25	.37	.62	.71									
	30	3.05 p. m.	6.05 p. m.	2.56	3.11 p. m.		.01	.46	.91	1.32	1.54	1.66	1.76	1.85†	(†)	(†)					
Canton, N. Y.	12			0.39														.37			
Charles City, Iowa	19	12.30 p. m.	12.48 p. m.	0.34	12.32 p. m.	12.38 p. m.	.01	.30	.33												
Charleston, S. C.	15	7.42 p. m.	10.28 p. m.	1.01	7.52 p. m.	8.30 p. m.	.01	.20	.38	.41	.43	.47	.53	.77	.83						
	20–21	10.52 p. m.	D. N. a. m.	2.66	11.23 p. m.	12.55 a. m.	.01	.06	.20	.32	.50	.64	.75	.80	.83	.93	1.10	1.43	1.85	2.20	
	21	2.45 p. m.	3.38 p. m.	0.75	3.02 p. m.	3.23 p. m.	.01	.27	.42	.58	.72	.74									
Charlotte, N. C.	4	6.42 p. m.	D. N. p. m.	2.36	6.48 p. m.	8.27 p. m.	.01	.24	.56	.79	.87	1.08	1.19	1.33	1.37	1.38	1.45	1.60	1.87	2.27	
	27	3.37 p. m.	4.35 p. m.	0.57	3.44 p. m.	3.59 p. m.	.01	.17	.40	.49											
Chattanooga, Tenn.	11	9.53 a. m.	11.25 a. m.	0.58	10.20 a. m.	10.29 a. m.	.04	.32	.54												
	26	7.26 a. m.	9.23 a. m.	1.19	8.06 a. m.	9.03 a. m.	.12	.08	.13	.23	.35	.50	.56	.59	.67	.81	.90	1.06			
Cheyenne, Wyo.	22			0.52														.17			
Chicago, Ill.	14	7.32 p. m.	8.45 p. m.	0.85	7.38 p. m.	8.18 p. m.	.02	.13	.29	.40	.50	.59	.67	.74	.79						
Cincinnati, Ohio	15	12.40 a. m.	3.10 a. m.	0.65	12.43 a. m.	12.56 a. m.	.01	.26	.41	.46											
Cleveland, Ohio.	4	11.11 a. m.	12.20 p. m.	1.36	11.25 a. m.	11.44 a. m.	.03	.42	.92	1.13	1.24										
	4–5	8.50 p. m.	1.30 a. m.	0.88	9.58 p. m.	10.16 p. m.	.02	.27	.44	.62	.76										
Columbia, Mo.	8	6.58 p. m.	7.25 p. m.	0.50	7.02 p. m.	7.11 p. m.	.01	.23	.48												
	11	5.35 p. m.	7.00 p. m.	0.98	5.38 p. m.	6.11 p. m.	.01	.24	.49	.64	.76	.83	.89	.94							
	19	3.55 p. m.	5.30 p. m.	1.66	4.37 p. m.	5.24 p. m.	.23	.23	.29	.44	.67	.79	.97	1.07	1.21	1.38	1.43				
Columbia, S. C.	19–20	8.40 p. m.	D. N. a. m.	1.04	9.14 p. m.	9.25 p. m.	.15	.29	.59	.62											
	22	6.10 p. m.	10.15 p. m.	1.49	7.21 p. m.	8.21 p. m.	.42	.08	.13	.24	.32	.37	.46	.52	.63	.73	.85	1.03			
Columbus, Ohio	27	1.55 p. m.	3.15 p. m.	0.70	2.18 p. m.	2.39 p. m.	.01	.16	.30	.43	.58	.61									
Concord, N. H.	5			0.56														.42			
Concordia, Kans.	16			0.09														.09			
Corpus Christi, Tex.	1	1.16 p. m.	2.47 p. m.	0.73	1.42 p. m.	2.02 p. m.	.02	.15	.35	.48	.63										
Davenport, Iowa	5			0.10														.10			
Dayton, Ohio	1	4.33 p. m.	6.36 p. m.	1.00	5.34 p. m.	6.08 p. m.	.17	.23	.46	.58	.64	.70	.73	.78							
Del Rio, Tex.	26	8.15 a. m.	1.30 p. m.	1.52	9.38 a. m.	10.10 a. m.	.36	.05	.16	.30	.43	.62	.78	.83							
Denver, Colo.	23			0.89														.56			
Des Moines, Iowa.	11			0.80														.36			
Detroit, Mich.	4	3.40 p. m.	8.30 p. m.	1.73	3.44 p. m.	4.09 p. m.	.01	.17	.39	.68	.73	.82									
					6.33 p. m.	6.42 p. m.	.87	.26	.42												
Devils Lake, N. Dak.	4			0.37														.20			
Dodge City, Kans.	27			0.16														.16			
Dubuque, Iowa.	11	5.42 p. m.	8.00 p. m.	0.98	6.06 p. m.	6.32 p. m.	.04	.10	.21	.39	.53	.72	.75								
Duluth, Minn.	4–5	8.30 p. m.	7.05 a. m.	2.06	9.54 p. m.	10.46 p. m.	.02	.22	.48	.74	.95	1.10	1.19	1.24	1.27	1.34	1.40	1.43			
Durango, Colo.	19			0.68														.48			
Eastport, Me.	25			0.84														.57			
Elkins, W. Va.	9–10	5.22 p. m.	D. N. a. m.	2.51	6.43 p. m.	7.01 p. m.	.06	.28	.52	.65	.76										
					8.43 p. m.	8.55 p. m.	1.10	.31	.53	.62											
	17	9.50 a. m.	12.05 p. m.	0.55	11.07 a. m.	11.19 a. m.	.05	.10	.39	.49											
	30	4.40 p. m.	5.46 p. m.	0.73	5.03 p. m.	5.28 p. m.	.01	.13	.23	.51	.61	.72									
El Paso, Tex.	21			0.48														.32			
Erie, Pa.	12			0.26														.26			
Escanaba, Mich.	11–12	8.55 p. m.	D. N. a. m.	1.70	10.54 p. m.	12.42 a. m.	.11	.11	.16	.25	.33	.41	.57	.61	.63	.69	.78	.87	1.04	1.21	1.49
Eureka, Cal.	3			0.13														.07			
Evansville, Ind.	24			0.62														.28			
Flagstaff, Ariz.	20–21			0.75														*			
Fort Smith, Ark.	6	5.27 p. m.	6.25 p. m.	0.58	5.35 p. m.	5.58 p. m.	.04	.14	.26	.38	.45	.49									
Fort Wayne, Ind.	14	12.01 a. m.	6.15 a. m.	1.56	12.01 a. m.	12.48 a. m.	.00	.12	.18	.33	.64	.80	.87	.95	1.01	1.07	1.10				
Fort Worth, Tex.	1	5.49 p. m.	7.05 p. m.	0.79	5.54 p. m.	6.12 p. m.	.01	.14	.44	.72	.76										
	24	4.24 p. m.	10.10 p. m.	1.22	4.53 p. m.	5.33 p. m.	.12	.12	.15	.16	.26	.55	.69	.77	.82						
	25	2.06 p. m.	3.02 p. m.	1.28	2.19 p. m.	2.49 p. m.	.02	.16	.48	.65	.70	1.10	1.24								
Fresno, Cal.	22			0.33														.24			
Galveston, Tex.	22–23	9.20 p. m.	D. N. a. m.	1.12	9.20 p. m.	10.06 p. m.	.00	.06	.16	.29	.39	.44	.53	.66	.77	.93	.98				
Grand Haven, Mich.	8			0.60														.46			
Grand Junction, Colo.	15			0.15														.12			
Grand Rapids, Mich.	14			0.37														.35			
Green Bay, Wis.	11	6.58 p. m.	11.55 p. m.	1.14	10.40 p. m.	11.11 p. m.	.41	.11	.31	.45	.54	.59	.64	.67							
Hannibal, Mo.	11			0.12														.12			
Harrisburg, Pa.	23	11.40 a. m.	1.20 p. m.	1.08	11.43 a. m.	12.03 p. m.	.02	.39	.78	.93	.98										
Hartford, Conn.	24	12.40 p. m.	2.10 p. m.	0.33	1.17 p. m.	1.26 p. m.	.01	.13	.31												
Hatteras, N. C.	25	2.49 p. m.	10.15 p. m.	0.98	4.55 p. m.	5.14 p. m.	.12	.07	.17	.28	.50										
	26	2.10 a. m.	7.50 a. m.	1.39	5.19 a. m.	5.32 a. m.	.48	.21	.49	.58											
Havre, Mont.	3			0.32														.23			
Helena, Mont.	25			0.42														.33			
Houghton, Mich.	11			0.37														.36			
Houston, Tex.	31	4.15 p. m.	8.10 p. m.	0.88	4.18 p. m.	4.48 p. m.	.01	.22	.36	.47	.63	.71	.78								
Huron, S. Dak.	16	12.02 a. m.	D. N. a. m.	0.87	12.05 a. m.	12.35 a. m.	.01	.14	.21	.38	.55	.63	.69								
Independence, Cal.	22			1.33														.42			
Indianapolis, Ind.	14–15	11.03 p. m.	D. N. a. m.	1.48	11.38 p. m.	12.16 a. m.	.05	.26	.64	.89	.95	1.00	1.04	1.10	1.13						
	31	3.40 p. m.	4.15 p. m.	0.71	3.48 p. m.	4.03 p. m.	.02	.13	.50	.69											

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during July, 1913, at all stations furnished with self-registering gages*—Continued.

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive rate began.	Depths of precip itation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Iola, Kans.	24	3.35 a. m.	4.45 a. m.	0.51	3.55 a. m.	4.15 a. m.	.08	.14	.26	.38	.43										
Jacksonville, Fla.	13	11.35 a. m.	1.10 p. m.	2.15	11.53 a. m.	12.23 p. m.	.01	.21	.71	1.20	1.67	1.89	2.04								
	21	3.55 p. m.	6.30 p. m.	0.64	4.35 p. m.	4.57 p. m.	.02	.30	.43	.50	.57	.61									
	28	2.00 p. m.	5.10 p. m.	1.64	2.03 p. m.	2.52 p. m.	.02	.26	.30	.39	.45	.65	.91	.98	1.09	1.18	1.25				
Kalispell, Mont.	1			0.14														.14			
Kansas City, Mo.	11	3.33 p. m.	3.53 p. m.	0.58	3.33 p. m.	3.44 p. m.	.00	.23	.55	.58											
	25	5.27 p. m.	6.00 p. m.	0.64	5.30 p. m.	5.48 p. m.	.01	.30	.41	.57	.63										
Keokuk, Iowa	1			0.04																	
Key West, Fla.	11			0.26														.03			
Knoxville, Tenn.	1	6.59 p. m.	D.N. p. m.	0.78	7.21 p. m.	7.53 p. m.	.03	.13	.22	.41	.53	.64	.73	.75				.26			
La Crosse, Wis.	4	3.30 a. m.	D.N. a. m.	1.39	3.55 a. m.	4.30 a. m.	.05	.10	.26	.41	.56	.69	.80	.86							
	5	12.01 a. m.	D.N. a. m.	1.02	12.01 a. m.	12.40 a. m.	.00	.12	.27	.50	.63	.74	.79	.90	.94						
Lander, Wyo.	22			0.61														.33			
Lansing, Mich.	16–17	D.N. p. m.	D.N. a. m.	0.75	11.49 p. m.	12.09 a. m.	.08	.21	.44	.55	.61										
La Salle, Ill.	16	2.10 a. m.	3.15 a. m.	0.87	2.20 a. m.	2.36 a. m.	.01	.19	.48	.79	.83										
Lewiston, Idaho.	13			0.08																	
Lexington, Ky.	11	1.27 p. m.	2.54 p. m.	0.91	1.58 p. m.	2.51 p. m.	.10	.09	.21	.30	.41	.46	.51	.51	.56	.61	.74	.06			
Lincoln, Nebr.	28	1.28 a. m.	3.45 a. m.	0.99	1.30 a. m.	1.49 a. m.	.01	.16	.40	.52	.59							.81			
Little Rock, Ark.	19	4.27 p. m.	5.35 p. m.	1.53	4.30 p. m.	5.14 p. m.	.01	.10	.33	.56	.77	.99	1.20	1.38	1.43	1.48					
Los Angeles, Cal.	20			T.														T.			
Louisville, Ky.	19	8.58 a. m.	9.24 a. m.	0.34	9.03 a. m.	9.09 a. m.	.01	.26	.29												
Ludington, Mich.	16	2.44 p. m.	3.55 p. m.	0.75	2.49 p. m.	3.05 p. m.	.01	.38	.53	.62	.65										
Lynchburg, Va.	19			0.67																	
Macon, Ga.	4	6.03 p. m.	D.N. p. m.	1.65	6.09 p. m.	7.10 p. m.	.01	.07	.13	.18	.37	.49	.56	.71	.88	1.06	1.28	.57			
	8	12.30 p. m.	5.15 p. m.	1.25	2.10 p. m.	2.39 p. m.	.58	.06	.13	.35	.42	.49	.53					1.50	1.56		
Madison, Wis.	13–14	7.40 p. m.	D.N. a. m.	1.27	10.00 p. m.	10.28 p. m.	.02	.09	.20	.34	.46	.59	.63								
	15	5.20 p. m.	6.45 p. m.	1.03	6.14 p. m.	6.31 p. m.	.05	.21	.48	.86	.96										
	15–16	10.15 p. m.	2.20 a. m.	0.95	10.27 p. m.	10.53 p. m.	.01	.12	.26	.44	.60	.74	.80								
Marquette, Mich.	4	D.N. a. m.	D.N. a. m.	0.53	1.45 a. m.	2.14 a. m.	.01	.05	.21	.28	.33	.39	.51								
	22	4.00 p. m.	5.42 p. m.	0.63	4.31 p. m.	4.40 p. m.	.04	.30	.57												
Memphis, Tenn.	2	6.18 p. m.	8.10 p. m.	1.24	6.20 p. m.	6.57 p. m.	.01	.15	(*)	(*)	(*)	(*)	(*)	.92	.97						
	11–12	8.09 p. m.	12.30 p. m.	2.09	2.51 a. m.	3.12 a. m.	.15	.21	.35	.41	.52	.57									
Meridian, Miss.	10	3.41 p. m.	4.20 p. m.	0.66	3.49 p. m.	4.09 p. m.	.01	.29	.41	.57	.63										
	23	3.40 p. m.	5.35 p. m.	0.89	3.47 p. m.	4.06 p. m.	.01	.29	.57	.70	.76										
	24	8.40 a. m.	11.00 a. m.	0.85	9.05 a. m.	9.25 a. m.	.12	.10	.33	.49	.63										
Miami, Fla.	11	6.46 p. m.	7.03 p. m.	0.44	6.49 p. m.	6.58 p. m.	.01	.28	.42												
Milwaukee, Wis.	14	5.21 p. m.	8.20 p. m.	1.13	5.52 p. m.	6.25 p. m.	.01	.07	.26	.49	.71	.93	1.01	1.04							
	2–3	11.27 p. m.	D.N. a. m.	0.83	11.34 p. m.	11.41 p. m.	.01	.51	.77												
Minneapolis, Minn.	4–5	8.50 p. m.	D.N. a. m.	1.18	9.00 p. m.	9.13 p. m.	.01	.49	.77	.86											
	15	11.50 a. m.	2.32 p. m.	1.33	1.36 p. m.	2.06 p. m.	.05	.07	.13	.24	.44	97	1.19								
	22	D.N. a. m.	5.50 a. m.	0.81	4.11 a. m.	4.24 a. m.	.01	.27	.54	.62											
Mobile, Ala.	29	2.13 p. m.	4.25 p. m.	1.22	2.57 p. m.	3.32 p. m.	.06	.07	.14	.18	.34	.56	.91	1.09							
Modena, Utah.	22			0.48																	
Montgomery, Ala.	25			0.33														.33			
Moorhead, Minn.	4	2.40 p. m.	6.05 p. m.	1.06	5.14 p. m.	5.48 p. m.	.46	.06	.15	.24	.30	.36	.53	.59				.33			
	29	7.20 p. m.	8.15 p. m.	0.81	7.26 p. m.	7.43 p. m.	.01	.22	.40	.73	.78										
Mount Tamalpais, Cal.	23			0.06																	
Mount Weather, Va.	5	6.01 p. m.	9.15 p. m.	0.71	6.04 p. m.	6.19 p. m.	.01	.18	.48	.57								.05			
Nantucket, Mass.	18			0.37																	
Nashville, Tenn.	2	3.27 p. m.	6.10 p. m.	2.02	3.32 p. m.	4.22 p. m.	.01	.12	.24	.33	.68	1.01	1.32	1.46	1.51	1.55	1.61	.14			
	12	2.50 a. m.	7.20 a. m.	1.38	2.50 a. m.	3.11 a. m.	.00	.25	.46	.56	.83	.86									
New Haven, Conn.	24			0.41														.30			
New Orleans, La.	9	9.15 p. m.	11.35 p. m.	0.76	9.34 p. m.	9.49 p. m.	.03	.07	.45	.69											
	19	8.55 p. m.	10.00 p. m.	0.57	9.01 p. m.	9.18 p. m.	.01	.11	.28	.44	.49										
	23	11.30 a. m.	12.55 p. m.	0.77	11.32 a. m.	11.47 a. m.	.01	.32	.60	.69											
New York, N. Y.	5	1.11 p. m.	1.46 p. m.	1.06	1.15 p. m.	1.30 p. m.	T.	.22	.65	1.00											
	2	10.35 p. m.	11.40 p. m.	0.59	10.41 p. m.	11.00 p. m.	.01	.11	.36	.48	.56										
	10	6.35 p. m.	10.00 p. m.	1.00	7.27 p. m.	7.41 p. m.	.08	.34	.71	.79											
Norfolk, Va.	10–11	11.30 p. m.	3.30 a. m.	1.43	11.36 p. m.	12.09 a. m.	.01	.15	.26	.40	.69	.80	.94	1.03							
	15	3.50 p. m.	6.50 p. m.	0.88	4.02 p. m.	4.32 p. m.	.01	.05	.09	.20	.38	.47	.54								
	19	5.35 p. m.	9.35 p. m.	1.68	6.36 p. m.	7.10 p. m.	.39	.17	.47	.64	.74	.84	.95	1.01							
	25	1.45 a. m.	3.15 a. m.	1.01	2.00 a. m.	2.48 a. m.	.05	.15	.24	.34	.53	.66	.68	.71	.81	.90	.95				
Northfield, Vt.	28	9.36 a. m.	12.10 p. m.	1.38	10.16 a. m.	11.00 a. m.	.13	.09	.23	.38	.52	.61	.75	.89	1.05	1.12					
North Head, Wash.	9			0.43														.20			
North Platte, Nebr.	17–18	11.25 p. m.	4.45 a. m.	1.15	11.44 p. m.	12.29 a. m.	.03	.08	.17	.23	.33	.44	.50	.56	.67	.73					
					3.35 a. m.	4.25 a. m.	.23	.14	.20	.36	.58	.71	.79	.89	.97	1.05	1.14				
Oklahoma, Okla.	**30–1	11.05 p. m.	12.20 p. m.	4.82	4.25 a. m.	5.15 a. m.	.....	1.26	1.42	1.55	1.64	1.68	1.79	1.90	2.13	2.28	2.40				
					5.15 a. m.	6.05 a. m.	.....	2.62	2.83	2.97	3.10	3.36	3.60	3.77	3.90	3.98	4.06				
					6.05 a. m.	6.10 a. m.	.....	4.19													
Omaha, Nebr.	28	2.40 a. m.	5.20 a. m.	0.67	2.40 a. m.	3.10 a. m.	.00	.07	.27	.40	.46	.51	.59								
Oswego, N. Y.	12	3.36 p. m.	4.15 p. m.	0.71	3.54 p. m.	4.09 p. m.	.01	.22	.54	.67											
Palestine, Tex.	2			0.68																	
Parkersburg, W. Va.	9	4.25 p. m.	6.00 p. m.	1.05	5.27 p. m.	5.53 p. m.	.13	.25	.62	.78	.80	.88	.92					.24			
Pensacola, Fla.	5	5.30 p. m.	7.40 p. m.	1.13	5.54 p. m.	6.15 p. m.	.02	.30	.61	.85	.98	1.02									
					6.20 a. m.	7.23 a. m.	.01	.16	.42	.63	.68	.68	.79	.91	1.00	1.02	1.06	1.22	1.34		
Do.	22	6.15 a. m.	10.45 a. m.	2.82	9.02 a. m.	10.17 a. m.	1.40	.19	.26	.41	.52	.59	.64	.67	.75	.83	.86	1.16	1.37		
	25	10.05 a. m.	12.40 p. m.	1.21	10.08 a. m.	10.27 a. m.	.01	.31	.80	.98	1.08										
Do.	29	1.05 p. m.	4.10 p. m.	0.85	1.17 p. m.	1.33 p. m.	.03	.23	.36	.47	.50										
Peoria, Ill.	15			0.28																	
Philadelphia, Pa.	5	4.04 p. m.	8.20 p. m.	1.17	4.16 p. m.	4.55 p. m.	.05	.18	.52	.62	.62	.63	.66	.90	1.00			.28			
	24	2.14 p. m.	2.30 p. m.	0.72	2.16 p. m.	2.28 p. m.	.01	.45	.68	.71											
Phoenix, Ariz.	19–20	10.30 p. m.	D. N. a. m.	0.72	10.32 p. m.	10.58 p. m.	.01	.17	.23	.32	.51	.65	.68								
Pierre, S. Dak.	15	8.30 p. m.	11.05 p. m.	0.99	9.42 p. m.	10.10 p. m.	.04	.08	.25	.45	.63	.68	.75								
Pittsburgh, Pa.	1	3.55 p. m.	8.10 p. m.	0.75	4.20 p. m.	4.55 p. m.	.02	.09	.18	.25	.31	.33	.51	.59							
	17	4.18 p. m.	5.05 p. m.	0.57	4.47 p. m.	4.56 p. m.	.01	.29	.55												
Pocatello, Idaho.	23	11.38 a. m.	1.28 p. m.	0.60	12.01 p. m.	12.16 p. m.	.08	.16	.24	.37											
Point Reyes Light, Cal.	22			0.09																	
Port Huron, Mich.	16–17	7.15 p. m.	D. N. a. m.	1.74	1.32 a. m.	1.44 a. m.	.84	.22	.51	.54								.07			
Portland, Me.	5	9.28 p. m.	11.07 p. m.	1.10	9.33 p. m.	10.12 p. m.	.01	.10	.15	.19	.29	.43	.56	.73	.81						
Portland, Oreg.	9			0.17																	
Providence, R. I.	24			0.41														.07			
Pueblo, Colo.	9	4.12 p. m.	D.N. p. m.	0.65	4.24 p. m.	4.39 p. m.	.06	.11	.40	.46								.29			
Raleigh, N. C.	3	6.21 p. m.	7.20 p. m.	0.92	6.24 p. m.	6.51 p. m.	.01	.17	.31	.49	.71	.82	.87								
	29	5.55 p. m.	8.05 p. m.	1.37	6.09 p. m.	6.43 p. m.	.03	.08	.21	.42	.65	1.07	1.27	1.32							
Rapid City, S. Dak.	30			0.21																	
Reading, Pa.	9–10	11.04 p. m.	12.18 a. m.	1.03	11.07 p. m.	11.38 p. m.	.01	.05	.19	.36	.57	.86	.91	.94				.09			
	12	4.10 p. m.	5.10 p. m.	0.90	4.17 p. m.	4.27 p. m.	.01	.42	.81												
Red Bluff, Cal.	23			T.																	
Reno, Nev.	23	9.55 a. m.	10.40 a. m.	0.73	9.55 a. m.	10.17 a. m.	.00	.12	.31	.56	.67	.70						T.			

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during July, 1913, at all stations furnished with self-registering gages*—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.												
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Richmond, Va.	5–6	9.05 p. m.	12.40 a. m.	0.66	10.59 p. m.	11.23 p. m.	.15	.13	.18	.24	.35	.49									
	18	1.11 a. m.	1.55 a. m.	1.42	1.18 a. m.	1.45 a. m.	.01	.24	.46	.62	1.11	1.37	1.40								
Rochester, N. Y.	5	4.20 a. m.	5.55 a. m.	0.73	4.26 a. m.	4.50 a. m.	.01	.10	.27	.46	.56	.61									
Roseburg, Oreg.	3			0.48														.14			
Roswell, N. Mex.	25			0.39														.38			
Sacramento, Cal.	22			T.														T.			
Saginaw, Mich.	16	9.33 p. m.	11.50 p. m.	0.62	10.41 p. m.	11.05 p. m.	.04	.17	.24	.36	.46	.54									
	27	3.25 p. m.	4.38 p. m.	2.24	3.33 p. m.	4.21 p. m.	.01	.43	1.14	1.55	1.80	1.93	1.94	2.01	2.10	2.14	2.19				
St. Joseph, Mo.	7	12.30 a. m.	6.38 a. m.	1.42	3.40 a. m.	3.56 a. m.	.60	.24	.37	.49	.53										
St. Louis, Mo.	1	11.37 a. m.	3.00 p. m.	2.12	11.40 a. m.	12 noon.	.01	.38	.67	.78	.83										
					1.22 p. m.	1.45 p. m.	.91	.24	.50	.64	.81	.89									
St. Paul, Minn.	4	9.05 p. m.	11.30 p. m.	1.36	9.08 p. m.	9.33 p. m.	.01	.30	.75	.83	.88	.93									
	15	12.02 p. m.	2.52 p. m.	0.72	1.54 p. m.	2.14 p. m.	.05	.11	.30	.54	.63										
	16	5.08 a. m.	5.55 a. m.	0.80	5.22 a. m.	5.46 a. m.	.02	.18	.41	.62	.69	.76									
Salt Lake City, Utah	18			0.12														.09			
San Antonio, Tex.	4			0.03														.03			
San Diego, Cal.	20			0.05														.04			
Sand Key, Fla.	6–7	11.25 p. m.	12.23 a. m.	0.78	11.42 p. m.	12.03 a. m.	.05	.13	.34	.49	.67	.71									
Sandusky, Ohio.	5			0.71														.49			
San Francisco, Cal.	22			0.06														.03			
San Jose, Cal.	22			0.08														.06			
San Luis Obispo, Cal.	13			T.														T.			
Santa Fe, N. Mex.	31			0.51														.45			
Sault Ste. Marie, Mich.	31	4.45 p. m.	7.05 p. m.	1.08	5.02 p. m.	5.58 p. m.	.07	.13	.29	.47	.54	.55	.58	.63	.66	.68	.77	.92			
Savannah, Ga.	21	12.30 a. m.	D. N. a. m.	1.52	1.00 a. m.	1.44 a. m.	.11	.05	.18	.25	.41	.56	.76	1.11	1.33	1.41					
	22	3.08 p. m.	7.15 p. m.	1.31	3.10 p. m.	3.42 p. m.	.01	.07	.28	.51	.71	.86	.96	1.00							
	27	6.30 p. m.	D.N. p. m.	0.77	6.30 p. m.	6.43 p. m.	.00	.16	.42	.56											
Scranton, Pa.	12	4.20 p. m.	6.00 p. m.	0.53	4.48 p. m.	5.05 p. m.	.01	.24	.38	.49	.52										
Seattle, Wash.	12			0.35														.22			
Sheridan, Wyo.	26			0.62														.17			
Shreveport, La.	2			0.20														.16			
Sioux City, Iowa.	22	2.50 p. m.	8.25 p. m.	0.92	3.17 p. m.	3.32 p. m.	.03	.21	.45	.59											
Southeast Farallon, Cal.	22			0.05														.03			
Spokane, Wash.	21			0.22														.14			
Springfield, Ill.	15	7.50 a. m.	10.20 a. m.	0.36	9.55 a. m.	10.06 a. m.	.02	.17	.32	.34											
Springfield, Mo.	30	4.18 p. m.	5.50 p. m.	1.75	4.18 p. m.	5.02 p. m.	.00	.07	.13	.39	.75	1.08	1.31	1.44	1.60	1.67					
Syracuse, N. Y.	23	5.55 p. m.	6.45 p. m.	0.38	6.12 p. m.	6.22 p. m.	.01	.22	.34												
Tacoma, Wash.	6			0.16														.07			
Tampa, Fla.	3	3.00 p. m.	4.50 p. m.	0.79	3.15 p. m.	3.45 p. m.	.02	.16	.33	.46	.59	.69	.76								
	16	12.45 p. m.	3.15 p. m.	1.54	1.58 p. m.	2.43 p. m.	.33	.12	.25	.38	.47	.53	.78	.86	1.01	1.17					
	24	4.46 p. m.	6.25 p. m.	1.00	4.46 p. m.	5.05 p. m.	.00	.22	.50	.66	.71										
	25	4.00 p. m.	5.55 p. m.	0.92	4.52 p. m.	5.17 p. m.	.20	.15	.37	.55	.61	.68									
Tatoosh Island, Wash.	6			1.23														.26			
Taylor, Tex.	31			0.01														.01			
Terre Haute, Ind.	9			0.28														.28			
Thomasville, Ga.	3	7.40 p. m.	10.00 p. m.	0.87	7.45 p. m.	8.11 p. m.	T.	.23	.52	.69	.75	.80	.83								
	28	6.20 p. m.	10.00 p. m.	1.92	6.45 p. m.	7.15 p. m.	.01	.12	.40	.61	.95	1.38	1.51								
Toledo, Ohio.	5	3.16 p. m.	4.20 p. m.	0.71	3.18 p. m.	4.03 p. m.	.01	.06	.10	.16	.23	.32	.39	.43	.59	.65					
	28	1.40 p. m.	2.22 p. m.	0.69	1.51 p. m.	2.04 p. m.	.08	.12	.48	.58											
Tonopah, Nev.	27			0.05														.04			
Topeka, Kans.	18–19	11.55 p. m.	D. N. a. m.	0.75	1.03 a. m.	1.14 a. m.	.31	.25	.34	.37											
Valentine, Nebr.	15	7.50 p. m.	8.40 p. m.	0.78	8.02 p. m.	8.17 p. m.	.03	.30	.63	.74											
	16–17	D.N. p.m.	D. N. a. m.	1.28	12.30 a. m.	1.24 a. m.	.07	.08	.39	.51	.55	.57	.59	.67	.76	.89	.98	1.05			
Vicksburg, Miss.	2			0.42														.39			
Walla Walla, Wash.																					
Washington, D. C.	30	3.00 p. m.	5.30 p. m.	2.02	3.10 p. m.	3.27 p. m.	.01	.52	1.21	1.51	1.56										
Wichita, Kans.	27			0.75														.36			
Williston, N. Dak.	15	8.02 p. m.	8.40 p. m.	0.53	8.04 p. m.	8.20 p. m.	.01	.11	.32	.48	.52										
Wilmington, N. C.	15	3.43 p. m.	7.10 p. m.	0.78	3.54 p. m.	4.24 p. m.	.03	.08	.17	.28	.47	.57	.66								
	20–21	9.54 p. m.	6.50 a. m.	2.42	9.54 p. m.	10.43 p. m.	.00	.22	.31	.36	.39	.45	.47	.77	.99	1.05	1.14				
Winnemucca, Nev.	23			0.65														.27			
Wytheville, Va.	28	2.05 p. m.	3.00 p. m.	1.13	2.08 p. m.	2.36 p. m.	.01	.16	.48	.63	.71	.95	1.08								
Yankton, S. Dak.	17			0.30														.29			
Yellowstone Park, Wyo.	29			1.17														.27			

*Self-register not working. † Record partly estimated. †† No precipitation occurred during month. **June 30–July 1.

TABLE III.—*Data furnished by the Canadian Meteorological Service, July, 1913.*

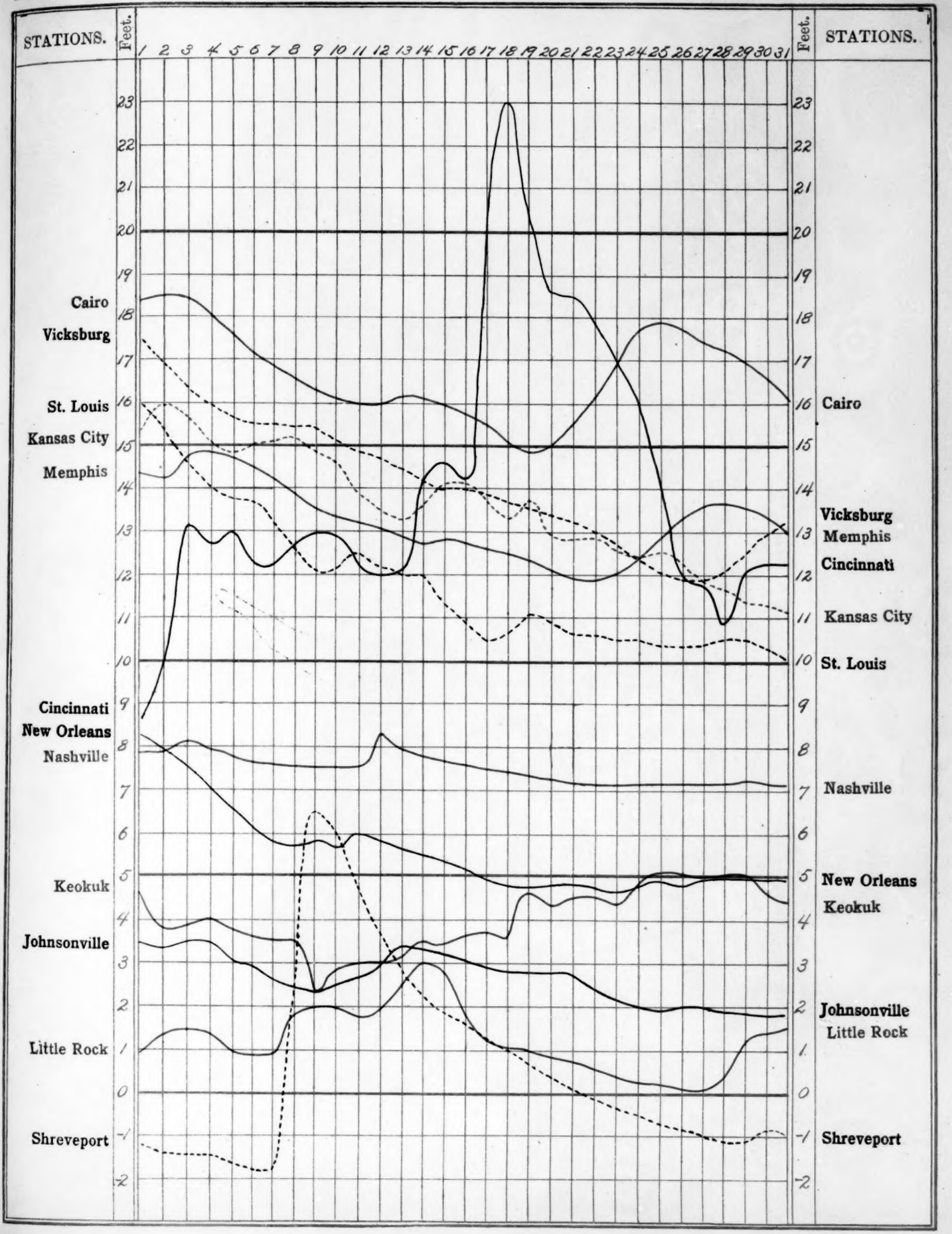
Districts and stations.	Pressure in inches.			Temperature.						Precipitation.		
	Station reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Mean maximum.	Mean minimum.	Highest.	Lowest.	Total.	Departure from normal.	Snowfall.
St. Johns, N. F.	29.78	29.91	−.06	56.4	−2.9	64.3	48.6	81	40	5.32	+1.43	
Sydney, C. B. I.	29.86	29.90	−.03	63.0	+0.7	72.6	53.3	84	36	2.70	−0.95	
Halifax, N. S.	29.81	29.91	−.05	64.8	+1.4	75.9	53.8	90	47	4.08	+0.03	
Yarmouth, N. S.	29.86	29.93	−.02	61.2	+1.7	68.3	54.0	76	46	3.85	+0.23	
Charlottetown, P. E. I.	29.84	29.88	−.02	64.4	+0.3	72.5	56.4	83	47	4.18	+0.69	
Chatham, N. B.	29.84	29.86	−.02	66.0	+1.0	76.2	55.7	92	50	3.49	−0.70	
Father Point, Que.	29.79	29.81	−.04	58.1	+0.5	65.9	50.3	75	43	4.35	+1.31	
Quebec, Que.	29.52	29.83	−.08	66.2	+0.7	76.2	56.2	90	48	6.05	+1.79	
Montreal, Que.	29.66	29.86	−.07	69.5	+1.0	78.1	60.9	93	51	2.42	−1.87	
Stonecliffe, Ont.	29.26	29.86	−.08	65.2	−0.4	78.4	52.1	92	40	2.31	−0.81	
Ottawa, Ont.	29.62	29.94	.00	69.2	−0.3	79.5	58.8	93	46	2.03	−1.44	
Kingston, Ont.	29.62	29.92	−.05	68.8	+0.6	77.4	59.3	90	48	2.16	−0.73	
Toronto, Ont.	29.55	29.91	−.06	70.2	+2.2	81.5	58.9	95	50	2.67	−0.25	
White River, Ont.												
Port Stanley, Ont.	29.35	29.98	.00	70.6	+2.8	77.1	64.0	83	52	3.77	+0.73	
Southampton, Ont.	29.28			65.4	+0.7	74.8	56.1	90	42	2.40	+0.42	
Parry Sound, Ont.	29.25	29.93	−.03	67.2	+1.2	78.5	55.8	97	44	1.42	−1.20	
Port Arthur, Ont.	29.24	29.95	+.01	60.9	−1.1	71.7	50.1	82	42	6.26	+2.78	
Winnipeg, Man.	29.10	29.92	−.01	64.4	−1.6	75.3	53.5	88	46	2.09	−0.99	
Minnedosa, Man.	28.14	29.93	.00	60.8	−1.4	72.6	49.1	90	42	3.87	+1.27	
Qu'Appelle, Sask.	27.68	29.90	−.02	60.9	−2.6	72.7	49.1	84	37	3.66	+1.18	
Medicine Hat, Alberta	27.67	29.90	.00	68.8	+1.0	84.7	52.8	98	43	1.35	−0.74	
Swift Current, Sask.	27.38	29.91	.00	63.1	−3.4	78.0	48.2	93	38	2.10	−0.34	
Calgary, Alberta	26.44	29.91	+.01	61.3	+0.7	76.2	46.4	87	38	0.61	−2.07	
Banff, Alberta	25.43	29.95	+.05	56.4	−0.2	70.4	42.3	87	34	0.91	−2.33	
Edmonton, Alberta	27.64	29.89	−.01	60.4	−0.2	72.8	48.1	86	41	4.35	+1.32	
Prince Albert, Sask.												
Battleford, Sask.	28.18	29.90	.00	62.6	−2.1	74.0	51.2	88	45	3.56	+1.22	
Kamloops, B. C.	28.66	29.90	−.04	67.4	−1.1	79.8	54.9	99	43	0.96	−0.65	
Victoria, B. C.	29.96	30.05	.00	61.8	+1.8	71.7	51.9	85	45	0.45	+0.05	
Barkerville, B. C.	25.73	30.02	+1.1	51.9	−3.2	64.3	39.5	79	32	2.15	−0.87	

Climatological Districts of the United States.



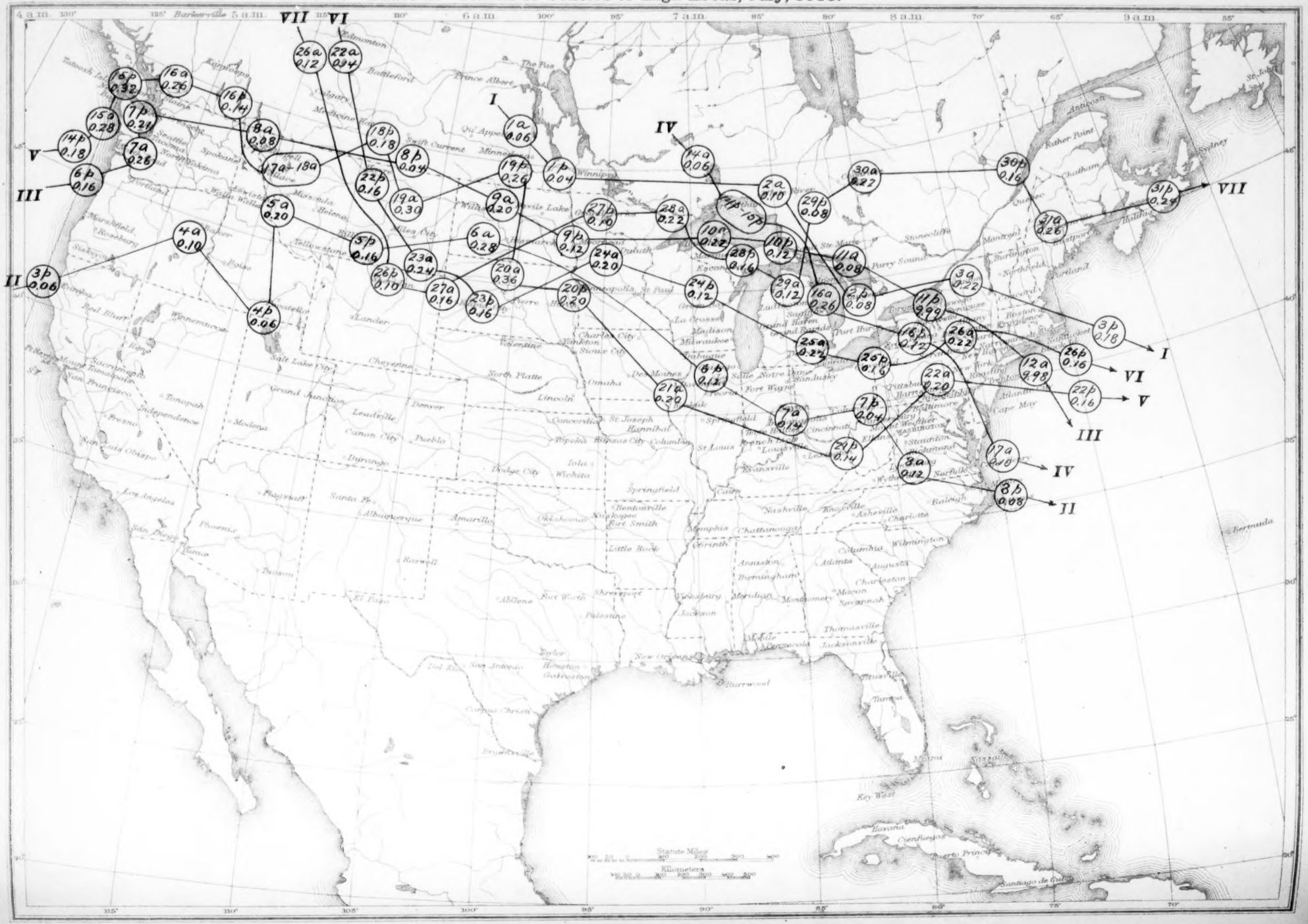

4 a.m.
5 a.m.
6 a.m.
7 a.m.
8 a.m.
9 a.m.
Barkerville
Edmonton
Battleford
Prince Albert
The Pas
Calgary
Medicine Hat
Swift Current
Moosejaw
Winnipeg
Kamloops
Port Arthur
White River
Sault Ste Marie
Parry Sound
Toronto
Ottawa
Montreal
Quebec
Sydney
St. John
Portland
Boston
Providence
Albany
Buffalo
Cleveland
Pittsburg
Harrisburg
Scranton
Atlantic City
Cape May
Cape Henry
Norfolk
Hatteras
Manteo
Raleigh
Wilmington
Charleston
Savannah
Augusta
Atlanta
Columbia
Asheville
Charlotte
Knoxville
Nashville
Chattanooga
Memphis
Vicksburg
Meridian
Montgomery
Mobile
Pensacola
Jacksonville
Tampa
Miami
Nassau
Key West
Havana
Cienfuegos
Puerto Principe
Santiago de Cuba
Bermuda
Corpus Christi
Brownsville
Del Rio
San Antonio
Galveston
Houston
Palestine
Waco
Fort Worth
Abilene
Shreveport
New Orleans
Little Rock
Springfield
Cairo
Evansville
Louisville
Lexington
Indianapolis
Cincinnati
Columbus
Detroit
Grand Haven
Grand Rapids
Lansing
Fort Huron
Saginaw
Milwaukee
Madison
Green Bay
La Crosse
Dubuque
Chicago
La Salle
Notre Dame
Peoria
Fort Wayne
Rockford
Springfield
Hannibal
St. Joseph
Kansas City
Columbia
St. Louis
Concordia
Topeka
Wichita
Dodge City
Iola
Omaha
Des Moines
Sioux City
Charles City
Minneapolis
St. Paul
Duluth
Moorhead
Grand Forks
Devils Lake
Williston
Bismarck
Huron
Pierre
Rapid City
Valentine
North Platte
Lincoln
Denver
Pueblo
Canon City
Durango
Albuquerque
Santa Fe
Amarillo
Oklahoma
Roswell
Tucson
Flagstaff
Phoenix
Los Angeles
San Diego
San Francisco
Sacramento
San Luis Obispo
Fresno
Independence
Tonopah
Reno
Red Bluff
Winnemucca
Modena
Grand Junction
Salt Lake City
Cheyenne
Landers
Rawlins
Rock Springs
Evanston
Yellowstone Park
Sheridan
Miles City
Havre
Helena
Butte
Missoula
Spokane
North Yakima
Walla Walla
Seattle
Tatoosh Island
Statute Miles
Kilometers

Chart I. Hydrographs of Several Principal Rivers, July, 1913.



XLI—49.

Chart II. Tracks of Centers of High Areas, July, 1913.



XLI—50.

Chart III. Tracks of Centers of Low Areas, July, 1913.

Chart III. Tracks of Centers of Low Areas, July, 1913.

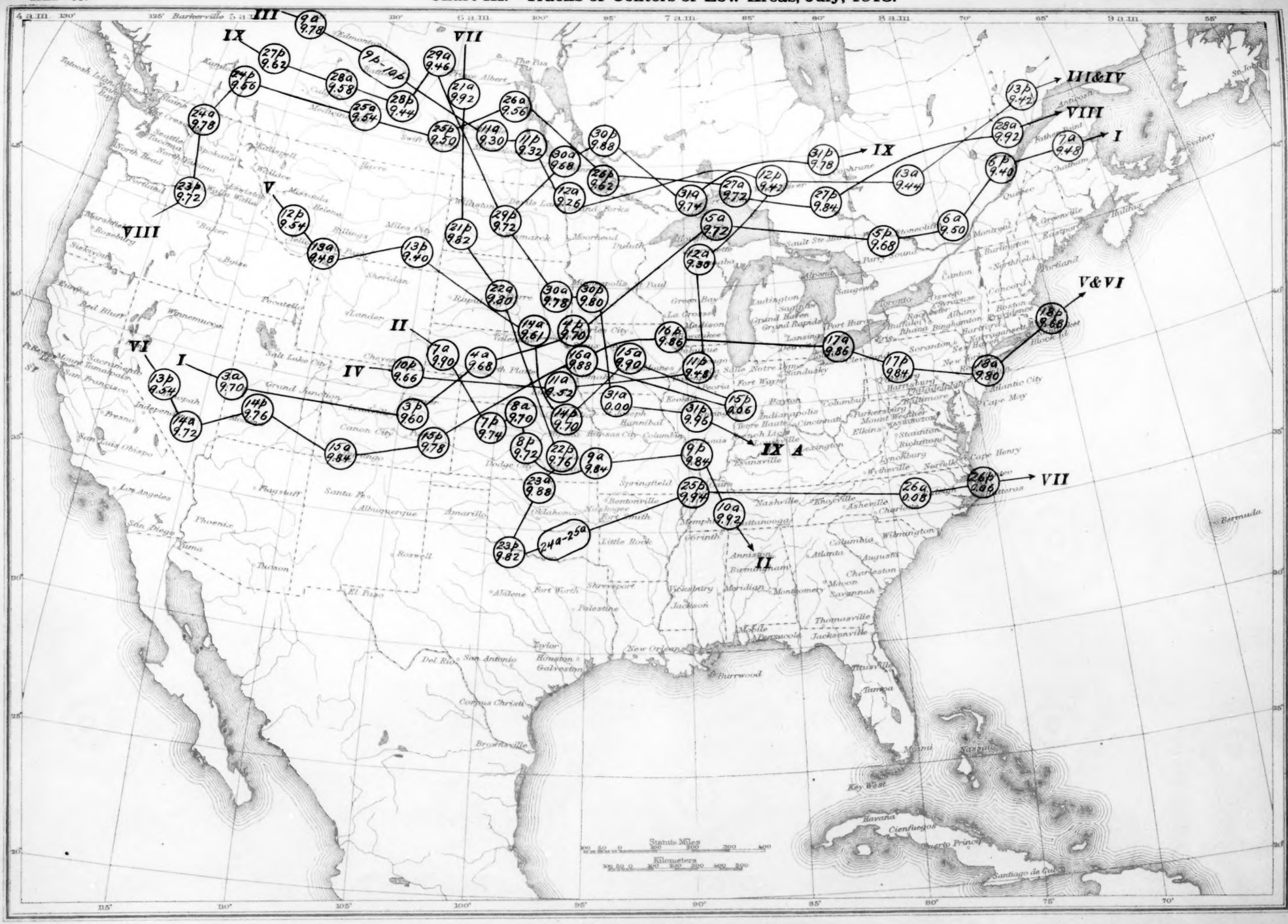


Chart IV. Departure of the Mean Temperature from the Normal, July, 1913.

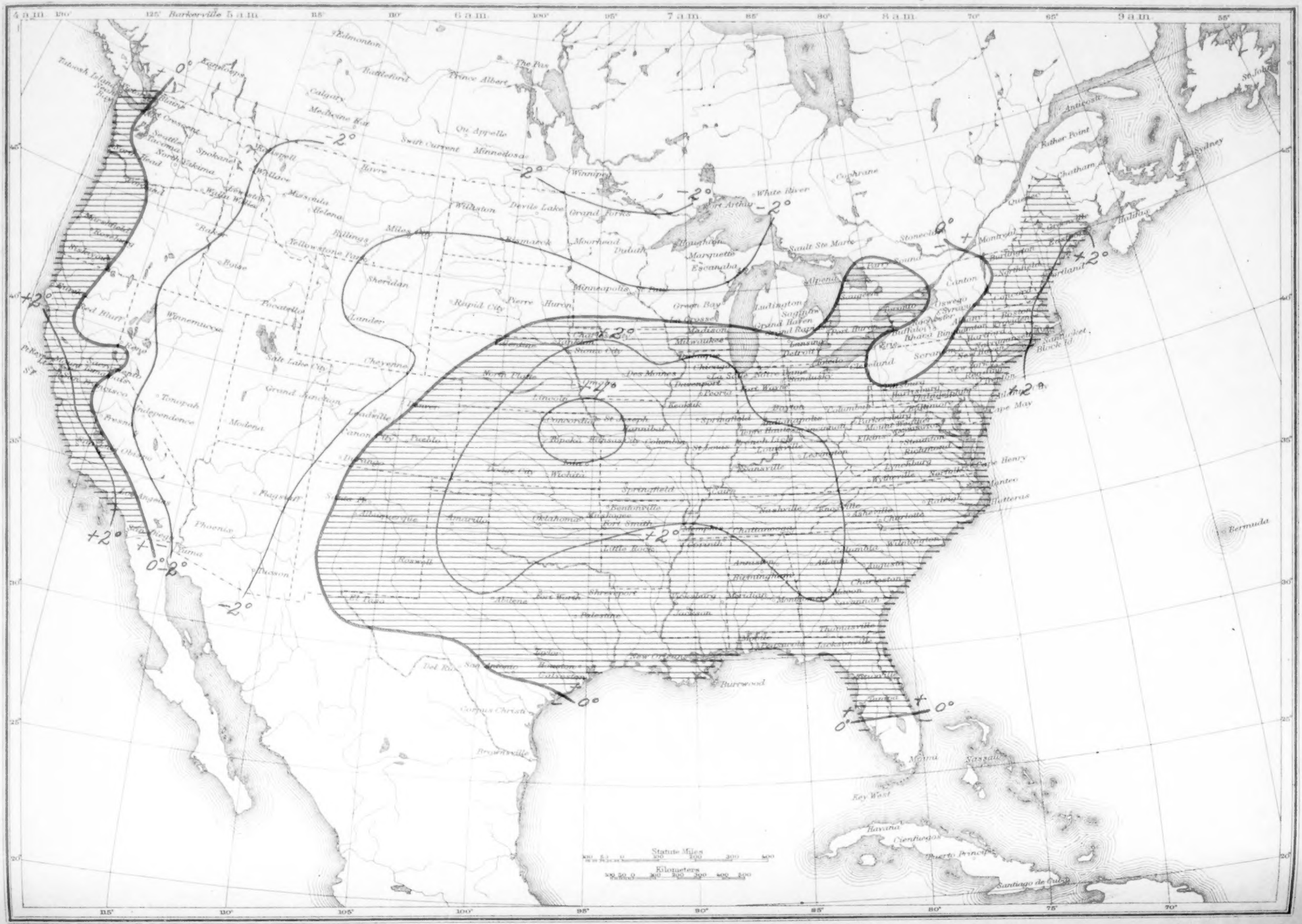

+0°
-2°
-2°
-2°
-2°
+2°
+2°
+

Chart V. Total Precipitation, July, 1913.



Chart VI. Percentage of Clear Sky between Sunrise and Sunset, July, 1913.

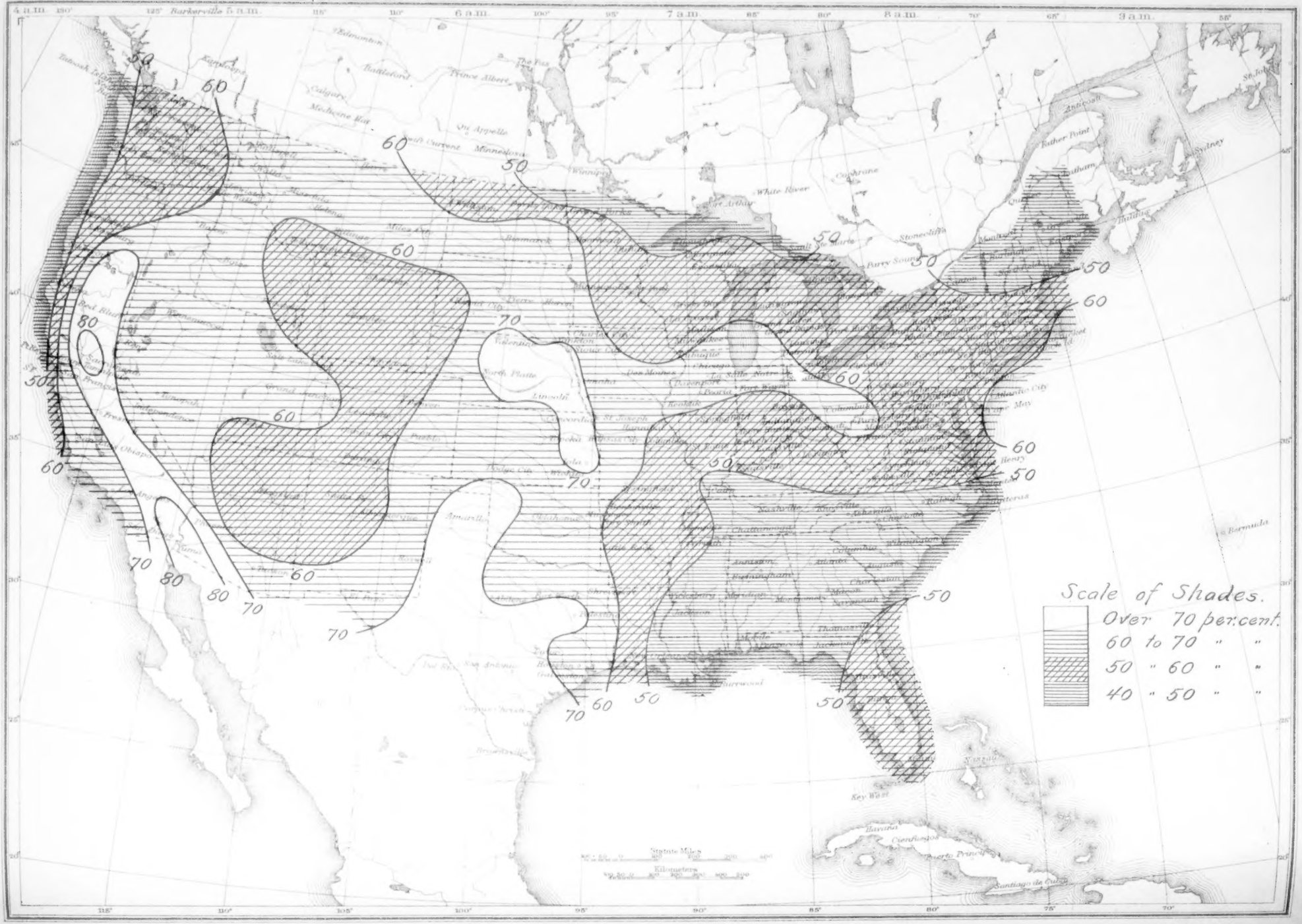


Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, July, 1913.

